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SURVEY RELEASE NO. 48

JULY 1956

FOREST STATISTICS FOR THE PIEDMONT OF NORTH CAROLINA, 1956

by

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FOREWORD

Through the McSweeney-McNary Act of 1928, Congress authorized the Secretary of Agriculture to conduct a comprehensive survey of the forest resources of the United States. The Forest Survey was organized by the Forest Service to carry out the provisions of the Act through the Regional Forest Experiment Stations. In the Southeastern states the Forest Survey is an activity of the Division of Forest Economics of the Southeastern Forest Experiment Station, Asheville, North Carolina.

The five-fold purpose of the Forest Survey is (1) to make a field inventory of the present supply of standing timber, (2) to ascertain the rate at which this supply is being increased through growth, (3) to determine the rate at which it is being reduced through industrial and domestic uses, fire, and other causes, (4) to determine the present consumption and the probable future trend in requirements for forest products, and (5) to interpret and correlate these findings to aid in the formulation of private and public policies regarding forest land management.

The first Forest Survey of North Carolina was made during the late 1930's, and complete findings have been published. In 1952, a resurvey of the State was started to obtain up-to-date statistics on forest area, timber volume, growth, and the amount of timber cut. To date, progress reports on the resurvey have been issued for three of the four survey units as the field work was completed. This report covers the North Carolina Piedmont area, which is designated as Survey Unit No. 3. A statistical report for the entire State will be released in the near future.

ACKNOWLEDGMENTS

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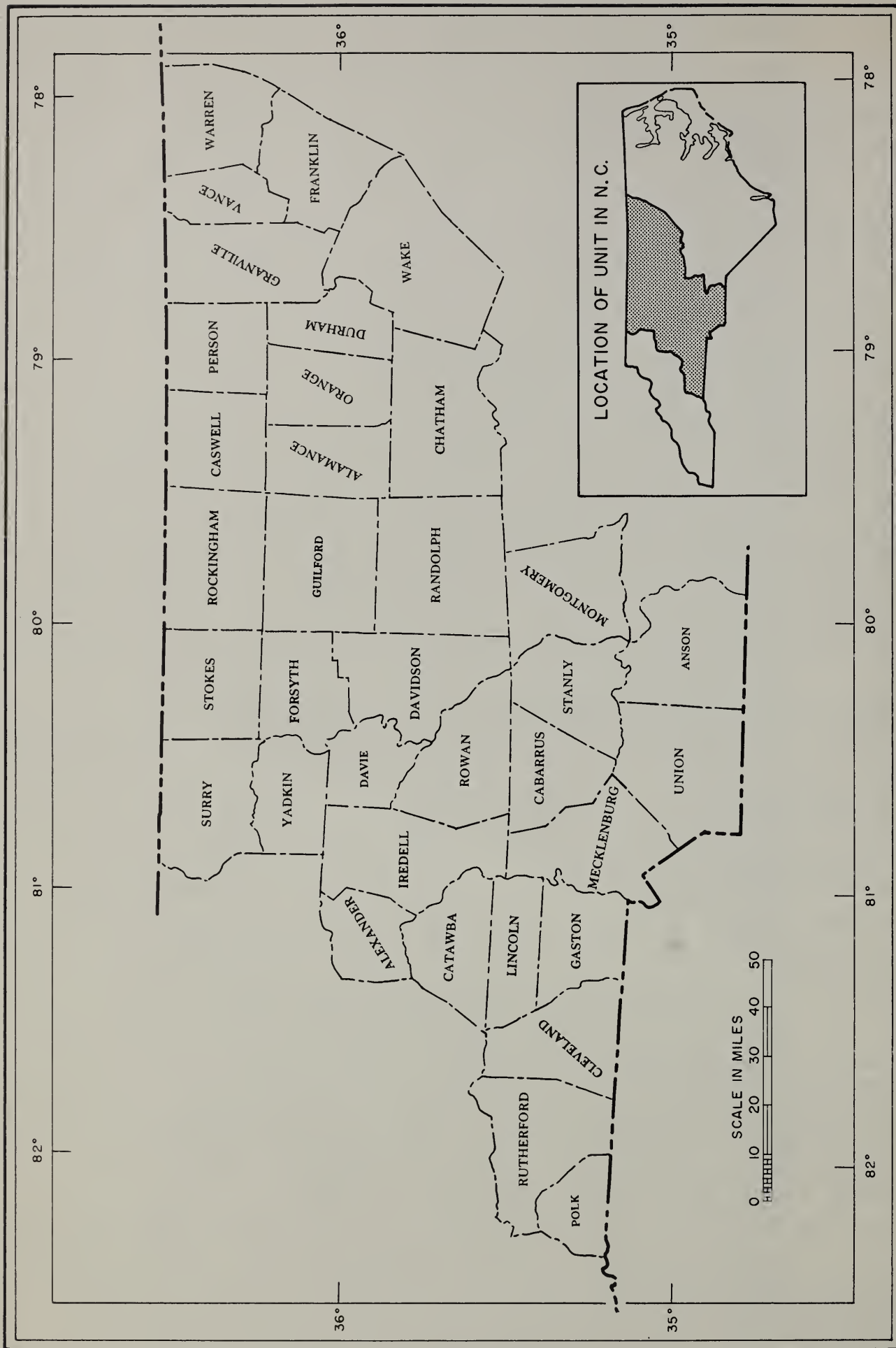


Figure 1.--Counties in the Piedmont of North Carolina included in Forest Survey Unit No. 3.

FOREST STATISTICS FOR THE PIEDMONT OF

NORTH CAROLINA, 1956

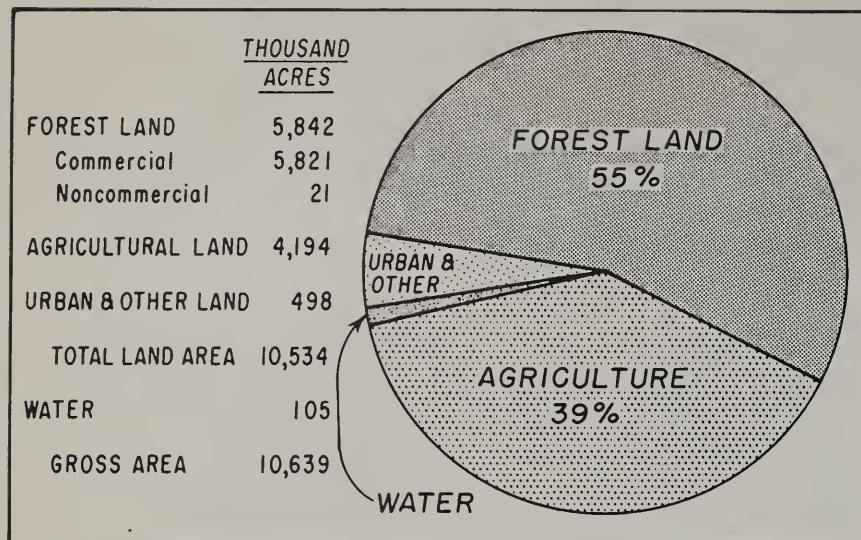
The Piedmont of North Carolina (fig. 1) is an area of rolling to hilly land lying between the rugged mountains to the west and the flat, level Coastal Plain to the east. It stretches across the central part of the State in a broad band running northeast and southwest, being a portion of the Piedmont Plateau Region which extends from the Hudson River in New York State to east-central Alabama. Numerous small tracts of forest land intermingled with agricultural land are characteristic throughout the area. Small and highly diverse ownerships are the rule.

This progress report presents statistical information compiled from the second Forest Survey of North Carolina. Examination of systematically spaced points on aerial photographs provided information on forest area. A sample of the points classified as forest were selected to be examined on the ground. Measurements and observations on 1,640 one-fifth-acre plots distributed throughout the forest area in each of the 35 counties provided data on volume and growth of timber, on amount of timber cut, and on forest conditions. In addition to these forest plots, 680 nonforest plots were examined to check on the accuracy of the photo classification and to detect changes in land use since the photographs were made. Field work was done between July 1955 and January 1956.

The forest resources of North Carolina were first inventoried by the Forest Survey during the years 1937-38. Comparisons made between the results of the two surveys are discussed on the following pages to point out trends and changes which have taken place in the past 18 years. A careful adjustment of the 1937 data collected in the Piedmont has been made to eliminate differences due solely to changes in survey standards or methods used, so that comparisons would be valid.

PRESENT FOREST SITUATION AND RECENT TRENDS

Acreage of forest land shows 17-percent increase.--Piedmont North Carolina is the most heavily populated and industrialized section of the State, yet more than half the gross area is still forest land. The 1956 survey revealed that a total of 5.8 million acres,



or 55 percent, was forested (fig. 2). Practically all of this acreage is available for production of commercial timber crops. Reserved land in State Parks, together with other noncommercial forest, amounts to only 21,000 acres.

Figure 2.--Gross area of land and water in the Piedmont of North Carolina.

In the North Carolina Piedmont, as in many areas throughout the Southeast, the trend is toward a shift from agricultural use to forest. Since 1937, the area of forest land increased by 869,000 acres, a gain of 17 percent. Most of this increase is former agricultural and pasture lands which have been allowed to revert to forests--usually the poorer land which because of increased farm productivity and mechanization is no longer needed for crops.

Private ownership accounts for 5.7 million acres, or 98 percent of all commercial forest land in the area. Less than 100,000 acres are publicly owned, and most of this acreage is in State Parks or in the Uwharrie National Forest purchase unit. Farmers own or manage nearly 88 percent of the forest land, and industrial or other private holdings make up the remainder. Data taken from the 1950 Census of Agriculture show that the average farm contains 71 acres, half of which is in woodland.

Pine acreage shows 12 percent drop.--Another trend found in the North Carolina Piedmont is a gradual conversion of forest types from pine to hardwood. There are now about 400,000 fewer acres of yellow pine types than in 1937, a decline of 12 percent in 18 years. On the other hand, hardwood types have made substantial gains. These changes have reduced the proportion of forest area in pine types from 72 percent at the beginning of the period to 54 percent at the present time (fig. 3).

Shortleaf, loblolly, and other yellow pine species are under heavy demand for the manufacture of forest products. Loggers

operating in mixed stands often cut all the pine but little of the hardwood timber. Thus, the residual stand often becomes a hardwood type.

The short-leaf pine type occupies 1.4 million acres and is the most important of the softwood group.

Loblolly and Virginia pine types together also contain more than 1 million acres. The most extensive hardwood type is oak-hickory, which covers nearly 2 million acres.

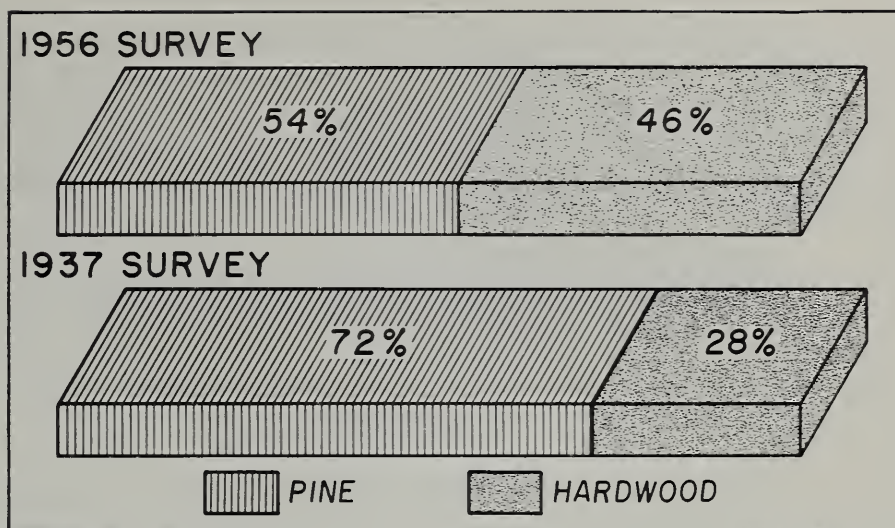


Figure 3.--Shift of forest area from pine types to hardwood.

Pine sawtimber volume down 15 percent.--Cutting in excess of growth since 1937 decreased the volume of yellow pine sawtimber by 1.2 billion board-feet--a drop of 15 percent (table A).

Table A.--Comparison of sawtimber volume, 1937 to 1956

| Species group | 1937 ^{1/} | 1956 | Change | |
|-----------------|----------------------------|----------------------------|----------------------------|----------------|
| | <u>Million bd.-ft.</u> | <u>Million bd.-ft.</u> | <u>Million bd.-ft.</u> | <u>Percent</u> |
| Yellow pines | 7,605 | 6,443 | -1,162 | -15 |
| Other softwoods | 54 | 62 | +8 | +15 |
| Hardwoods | 5,002 | 6,956 | +1,954 | +39 |
| All species | 12,661 | 13,461 | +800 | +6 |

^{1/} Original survey volumes have been recomputed to allow for differences in standards between the two surveys and to provide a uniform basis for comparison. Thus, the 1937 estimate shown here will not agree with the volumes previously published.

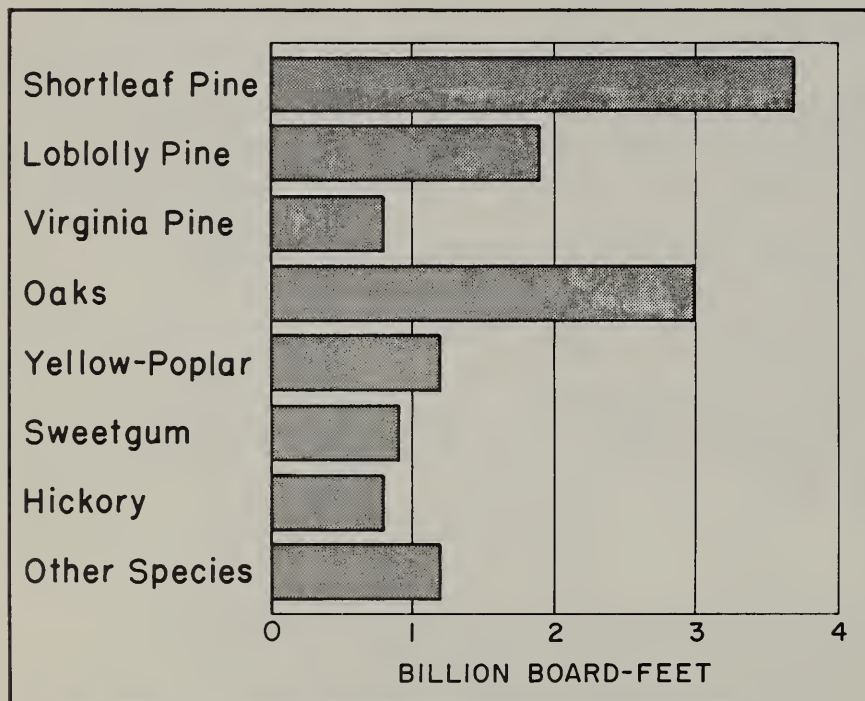
Hardwood sawtimber, like hardwood type acreage, increased, showing a gain of almost 2 billion board-feet. This was more than enough to offset the drop in pine and, as a result, the total net increase in the sawtimber supply was 6 percent.

A comparison of stand tables for the two surveys shows that the number of pine sawtimber trees has decreased in all diameter classes. Losses range from 2.5 percent in the 10-inch class to over 40 percent in the larger diameters. On the other hand, the number of pine trees in pole sizes had increased substantially. Large gains were also made by hardwood species in all sizes up to 30 inches.

Shortleaf pine predominates.--Sawtimber volume in the Piedmont is about equally divided between softwoods and hardwoods. The leading species is shortleaf pine, which makes up more than half the softwood volume and over one-fourth the total volume (fig. 4). Loblolly and Virginia pine are also important.

Among the hardwoods, a large variety of oak species combine to make up a major share of the board-foot volume. The white oak-swamp chestnut oak group is the largest, and fortunately these species generally grow straighter, are less defective, and have more desirable wood properties than many of the other oaks. In the red oak group,

three-fourths of the volume is composed of scarlet, black, southern red, and other less desirable species.



Among hardwood species other than oaks, yellow-poplar is the most abundant. This valuable timber tree accounts for 17 percent of the hardwood volume. Other principal hardwood species include sweetgum, hickory, ash, and maple.

Figure 4.--Sawtimber volume by species.

The Piedmont contains 83 million cords of wood in trees of various sizes, species, and quality. Only a third of this volume is in trees which are large enough and of high enough quality to make saw logs (fig. 5). Forty-one percent is in poletimber trees which are expected to be of sawtimber quality when they become large enough. Growing stock, which includes the wood in both sawtimber and poletimber trees to a 4-inch top, totals 71 million cords, or 85 percent of all wood volume in the unit. Most of the remaining

12 million cords are in cull trees which will not now, or in the future, produce a minimum 12-foot log with at least 50 percent of its volume suitable for lumber.

Nearly all of the cull volume is in "sound" cull trees; that is, in trees which are not suitable for saw logs because of sound defects such as crook and excessive limbiness. Many of these trees can be used for such products as pulpwood, fence

posts, and other items where clear length and straightness are not limiting factors. The very large and limby sound culls and practically all of the rotten culls have very little use except for fuelwood. Included with the culls are the limbs on hardwood sawtimber; these make up 13 percent of the cull volume.

Much of the sawtimber volume in the Piedmont is in trees capable of producing only small saw logs. Nearly two-thirds of the softwood sawtimber volume is in trees which measure 10 or 12 inches in diameter at breast height. Hardwood sawtimber averages somewhat larger, partly because 10-inch trees are not considered large enough to produce saw logs. Twelve-inch trees contain one-fourth of the hardwood sawtimber volume and more than half of the total is in trees under 20 inches in size.

Growing stock volume is up 17 percent.--In contrast to an increase of only 6 percent for sawtimber, growing stock shows a gain of 17 percent since 1937 (table B). This greater increase in growing stock was due mainly to the substantial increase in poletimber during this period. In the yellow pine group, the increase in poletimber just about offset the 15-percent drop in sawtimber, leaving the growing stock volume about the same. Hardwood growing stock shows a substantial gain of 45 percent.

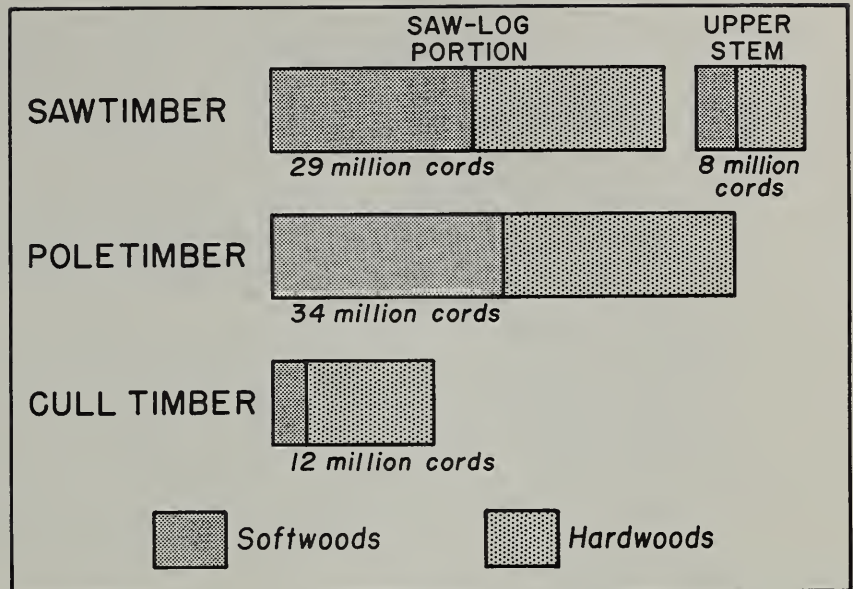


Figure 5.--Net cordwood volume of timber by species group and class of material.

Table B.--Comparison of volume in all trees 5.0 inches
d.b.h. and larger, 1937 to 1956

| Species group and class of material | 1937 ^{1/} | 1956 | Change | |
|--|----------------------------|----------------------------|----------------------------|----------------|
| | <u>Million cu. ft.</u> | <u>Million cu. ft.</u> | <u>Million cu. ft.</u> | <u>Percent</u> |
| Growing stock: | | | | |
| Yellow pines | 2,488 | 2,417 | -71 | -3 |
| Other softwoods | 32 | 36 | +4 | +12 |
| Hardwoods | 1,786 | 2,596 | +810 | +45 |
| All species | 4,306 | 5,049 | +743 | +17 |
| Cull trees: | | | | |
| Yellow pines | 112 | 165 | +53 | +47 |
| Other softwoods | 1 | 6 | +5 | +500 |
| Hardwoods ^{2/} | 421 | 562 | +141 | +33 |
| All species | 534 | 733 | +199 | +37 |
| All live trees | 4,840 | 5,782 | +942 | +19 |

^{1/} See footnote 1, table A.

^{2/} Excludes limb volume of hardwood sawtimber trees.

The big increase in hardwood sawtimber coupled with the drop in yellow pine has increased the hardwood proportion from 40 percent in 1937 to 52 percent in 1956. The proportion of hardwood growing stock jumped from 41 percent to 51 percent.

Percentage-wise, the increase in cull-tree volume was more than twice as great as in growing stock. However, cull timber in the Piedmont makes up a relatively small part of the total volume, and this increase changed the proportion of cull volume only slightly--from 11 percent in 1937 to 13 percent in 1956.

Annual growth is 825 million board-feet of sawtimber, 4 million cords of growing stock.--Sawtimber growth in the Piedmont is 825 million feet a year. This represents a growth rate of about 6 percent on the sawtimber inventory volume. More than half this growth is on yellow pine trees.

The average annual growth per acre of all stands in the Piedmont is 157 board-feet. The range is from 84 board-feet for Virginia pine stands to 254 board-feet for loblolly pine stands. While growth of sawtimber stands for all types averages 292 board-feet per acre, loblolly pine annual growth goes as high as 483 board-feet per acre.

Growing stock growth averages about 0.7 cord per acre per year for all stands and 1.0 cord per acre for sawtimber stands. In loblolly sawtimber stands the growth is 1.5 cords per acre.

Hardwood supply continues rapid increase.--Hardwood volume is increasing even faster now than during the 18-year period between surveys, especially growing stock. Hardwood sawtimber increased at an average annual rate of 2.2 percent between surveys, compared to the current rate of 2.5 percent. The annual rate of increase of hardwood growing stock between surveys was 2.5 percent; now it is 2.7 percent.

Yellow-poplar, sweetgum, and other soft hardwoods are increasing at a much faster rate than the hard hardwoods. However, hard hardwoods have much the larger inventory volume and they account for a greater share of the volume increase (fig. 6).

In contrast to the rapidly increasing hardwood supply, yellow pine sawtimber is decreasing at a slightly faster rate now than the average during the past 18 years. Current yellow pine sawtimber cut exceeds the growth by 65 million board-feet per year, or about 1 percent of the inventory volume. Yellow pine growing stock is still just barely holding its own--just as it has during the period between surveys.

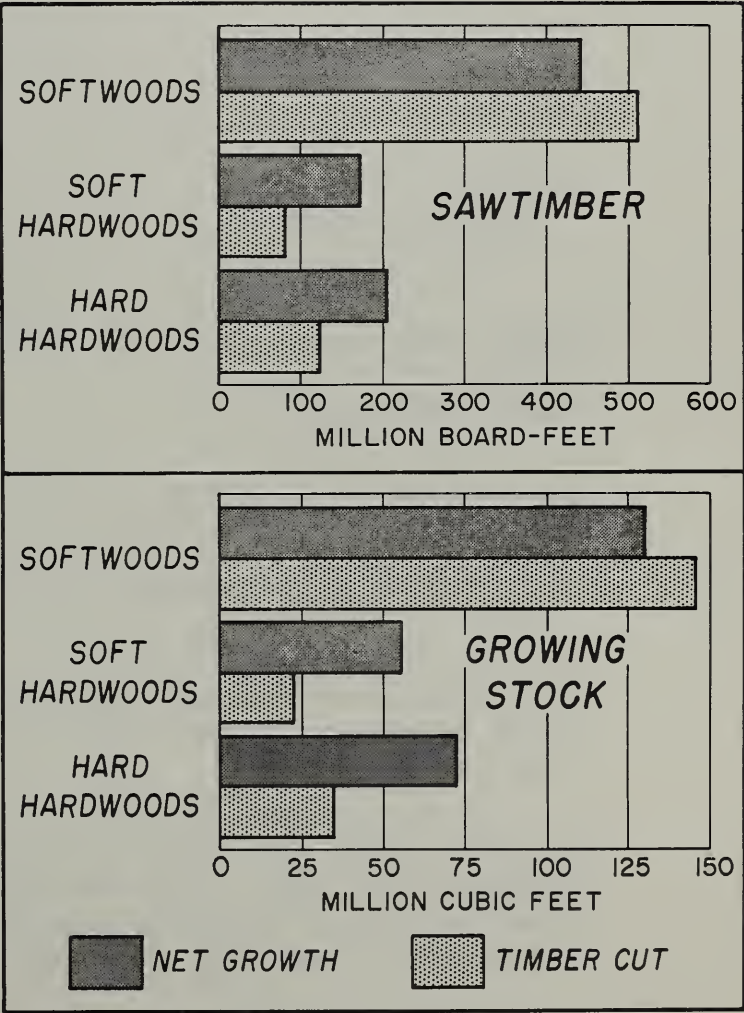


Figure 6.--Comparison of timber growth and timber cut in the Piedmont region of North Carolina.

Table 1.--Gross area^{1/} by broad use class, 1956

| Class of use | Area | |
|--------------------------------|---------------------------|----------------|
| | <u>Thousand acres</u> | <u>Percent</u> |
| Forest land: | | |
| Commercial | 5,821.1 | 54.7 |
| Noncommercial: | | |
| Productive-reserved | 15.9 | 0.2 |
| Unproductive | 4.5 | (2/) |
| Total forest | 5,841.5 | 54.9 |
| Nonforest land: | | |
| Agriculture | 4,194.0 | 39.4 |
| Urban and other ^{3/} | 497.9 | 4.7 |
| Total nonforest | 4,691.9 | 44.1 |
| Total land area | 10,533.4 | 99.0 |
| Total water area ^{4/} | 105.3 | 1.0 |
| All classes | 10,638.7 | 100.0 |

^{1/} From U. S. Bureau of the Census, 1950.

^{2/} Less than 0.05 percent.

^{3/} Includes urban, suburban residential, and rural industrial areas, rights-of-way, cemeteries, schools, etc.

^{4/} Includes 48,600 acres of Census water reported in 1950 plus 14,000 acres of Census water created since 1950. Also includes 42,700 acres of water according to Survey standards but defined by the Bureau of the Census as land area.

Table 2.--Ownership of commercial forest land, 1956

| Class of ownership | Commercial forest land | |
|----------------------|------------------------|----------------|
| | <u>Thousand acres</u> | <u>Percent</u> |
| Public land: | | |
| National forest | 55.1 | 0.9 |
| Indian | -- | -- |
| Other Federal | 10.5 | 0.2 |
| Total Federal | 65.6 | 1.1 |
| State | 20.3 | 0.4 |
| County and municipal | 11.9 | 0.2 |
| Total public | 97.8 | 1.7 |
| Private | | |
| Farm | 5,110.9 | 87.8 |
| Other | 612.4 | 10.5 |
| Total private | 5,723.3 | 98.3 |
| All classes | 5,821.1 | 100.0 |

Table 3.--Commercial forest area by forest type and stand-size class, 1956

(In thousand acres)

| Forest type ^{1/} | Large sawtimber stands | Small sawtimber stands | Pole- timber stands | Seedling & sapling stands | Poorly stocked stands & unstocked areas | All stands |
|---------------------------|------------------------------|------------------------------|---------------------------|---------------------------------|---|---------------|
| Softwood types: | | | | | | |
| Loblolly pine | 76.7 | 207.0 | 318.6 | 75.3 | 4.7 | 682.3 |
| Shortleaf pine | 43.2 | 596.9 | 560.9 | 136.0 | 15.7 | 1,352.7 |
| Virginia pine | 3.7 | 144.5 | 248.2 | 166.2 | 27.0 | 589.6 |
| White pine | 4.3 | 2.3 | -- | -- | 4.3 | 10.9 |
| Total | 127.9 | 950.7 | 1,127.7 | 377.5 | 51.7 | 2,635.5 |
| Hardwood types: | | | | | | |
| Oak-pine | 64.3 | 180.0 | 370.2 | 112.2 | 2.1 | 728.8 |
| Oak-hickory | 409.9 | 464.1 | 845.6 | 187.3 | 23.5 | 1,930.4 |
| Oak-gum-cypress | 147.3 | 123.1 | 166.7 | 50.2 | 39.1 | 526.4 |
| Total | 621.5 | 767.2 | 1,382.5 | 349.7 | 64.7 | 3,185.6 |
| All types | 749.4 | 1,717.9 | 2,510.2 | 727.2 | 116.4 | 5,821.1 |
| Percent | 12.9 | 29.5 | 43.1 | 12.5 | 2.0 | 100.0 |

^{1/} See description of forest types and stand-size classes under Definition of Terms.

Table 4.--Net volume^{1/} of sawtimber by species and stand-size class, 1956

(In million board-feet)

| Species ^{2/} | Large sawtimber stands | Small sawtimber stands | Pole- timber stands | Seedling & sapling stands | Poorly stocked stands & unstocked areas | All stands |
|--------------------------------|------------------------------|------------------------------|---------------------------|---------------------------------|---|---------------|
| Softwoods: | | | | | | |
| Longleaf pine | 29.3 | 3.8 | 5.8 | -- | -- | 38.9 |
| Loblolly pine | 700.8 | 1,024.3 | 200.3 | 5.2 | 0.5 | 1,931.1 |
| Shortleaf pine | 389.7 | 2,886.5 | 373.5 | 32.5 | 1.8 | 3,684.0 |
| Virginia pine | 68.3 | 592.6 | 123.7 | 3.5 | 0.7 | 788.8 |
| Total | 1,188.1 | 4,507.2 | 703.3 | 41.2 | 3.0 | 6,442.8 |
| White pine | 12.7 | 4.5 | 1.0 | -- | 4.7 | 22.9 |
| Redcedar | 5.9 | 18.7 | 14.1 | -- | 0.3 | 39.0 |
| Total sftwds. | 1,206.7 | 4,530.4 | 718.4 | 41.2 | 8.0 | 6,504.7 |
| Hardwoods: | | | | | | |
| Blackgum | 30.9 | 53.3 | 12.4 | 1.9 | 6.7 | 105.2 |
| Sweetgum | 422.7 | 368.4 | 92.8 | 2.9 | -- | 886.8 |
| Yellow-poplar | 605.4 | 460.7 | 99.3 | 21.6 | -- | 1,187.0 |
| Soft maple | 97.2 | 64.1 | 22.6 | 3.2 | 1.2 | 188.3 |
| Other soft hdwds. | 208.4 | 56.9 | 32.8 | 1.3 | 4.4 | 303.8 |
| Total | 1,364.6 | 1,003.4 | 259.9 | 30.9 | 12.3 | 2,671.1 |
| White & swamp chestnut oaks | 657.9 | 491.3 | 131.8 | 13.6 | 1.4 | 1,296.0 |
| Other white oaks | 167.9 | 169.1 | 63.1 | 1.3 | -- | 401.4 |
| No. red & swamp red oaks | 162.0 | 90.2 | 69.8 | 7.9 | -- | 329.9 |
| Other red oaks | 347.6 | 434.2 | 134.7 | 16.0 | -- | 932.5 |
| Hickory | 370.9 | 281.3 | 165.8 | 10.5 | -- | 828.5 |
| Ash | 97.1 | 56.1 | 25.7 | -- | -- | 178.9 |
| Beech | 91.1 | 15.9 | 10.2 | -- | -- | 117.2 |
| Sugar maple | 1.5 | 2.7 | 0.8 | -- | -- | 5.0 |
| Black walnut | 2.1 | 11.3 | 2.3 | -- | -- | 15.7 |
| Other hard hdwds. | 88.5 | 74.8 | 15.5 | 1.6 | -- | 180.4 |
| Total | 1,986.6 | 1,626.9 | 619.7 | 50.9 | 1.4 | 4,285.5 |
| Total hdwds. | 3,351.2 | 2,630.3 | 879.6 | 81.8 | 13.7 | 6,956.6 |
| All species | 4,557.9 | 7,160.7 | 1,598.0 | 123.0 | 21.7 | 13,461.3 |
| Percent | 33.8 | 53.2 | 11.9 | 0.9 | 0.2 | 100.0 |

^{1/} Log scale, International 1/4-inch rule.^{2/} See Definition of Terms for species combined with others.

Table 5.--Net volume^{1/} of sawtimber by species and diameter class, 1956

| Species | 10-12 inches ^{2/} | 14-18 inches | 20-24 inches | 26+ inches | All diameters | |
|--------------------------------|-------------------------------|--------------------|--------------------|--------------------|--------------------|---------|
| | Million bd.-ft. | Million bd.-ft. | Million bd.-ft. | Million bd.-ft. | Million bd.-ft. | Percent |
| Softwoods: | | | | | | |
| Longleaf pine | 6.6 | 23.8 | 8.5 | -- | 38.9 | 0.3 |
| Loblolly pine | 861.2 | 792.1 | 232.1 | 45.7 | 1,931.1 | 14.3 |
| Shortleaf pine | 2,654.3 | 909.8 | 100.9 | 19.0 | 3,684.0 | 27.4 |
| Virginia pine | 526.2 | 248.4 | 14.2 | -- | 788.8 | 5.8 |
| Total | 4,048.3 | 1,974.1 | 355.7 | 64.7 | 6,442.8 | 47.8 |
| White pine | 11.2 | -- | 11.7 | -- | 22.9 | 0.2 |
| Redcedar | 24.4 | 14.6 | -- | -- | 39.0 | 0.3 |
| Total sftwds. | 4,083.9 | 1,988.7 | 367.4 | 64.7 | 6,504.7 | 48.3 |
| Hardwoods: | | | | | | |
| Blackgum | 49.5 | 55.7 | -- | -- | 105.2 | 0.8 |
| Sweetgum | 211.7 | 486.6 | 155.8 | 32.7 | 886.8 | 6.6 |
| Yellow-poplar | 284.9 | 590.4 | 279.0 | 32.7 | 1,187.0 | 8.8 |
| Soft maple | 59.8 | 85.6 | 35.1 | 7.8 | 188.3 | 1.4 |
| Other soft hwdws. | 33.4 | 136.4 | 97.7 | 36.3 | 303.8 | 2.3 |
| Total | 639.3 | 1,354.7 | 567.6 | 109.5 | 2,671.1 | 19.9 |
| White & swamp chestnut oaks | 299.4 | 667.6 | 268.5 | 60.5 | 1,296.0 | 9.6 |
| Other white oaks | 133.0 | 199.1 | 63.8 | 5.5 | 401.4 | 3.0 |
| No. red & swamp red oaks | 79.9 | 172.6 | 49.1 | 28.3 | 329.9 | 2.5 |
| Other red oaks | 268.4 | 481.4 | 136.9 | 45.8 | 932.5 | 6.9 |
| Hickory | 235.4 | 439.0 | 124.8 | 29.3 | 828.5 | 6.2 |
| Ash | 63.0 | 85.7 | 24.4 | 5.8 | 178.9 | 1.3 |
| Beech | 12.8 | 53.7 | 32.9 | 17.8 | 117.2 | 0.9 |
| Sugar maple | 3.3 | 1.7 | -- | -- | 5.0 | (3/) |
| Black walnut | 6.6 | 9.1 | -- | -- | 15.7 | 0.1 |
| Other hard hwdws. | 43.3 | 95.0 | 33.3 | 8.8 | 180.4 | 1.3 |
| Total | 1,145.1 | 2,204.9 | 733.7 | 201.8 | 4,285.5 | 31.8 |
| Total hwdws. | 1,784.4 | 3,559.6 | 1,301.3 | 311.3 | 6,956.6 | 51.7 |
| All species | 5,868.3 | 5,548.3 | 1,668.7 | 376.0 | 13,461.3 | 100.0 |
| Percent | 43.6 | 41.2 | 12.4 | 2.8 | 100.0 | -- |

^{1/} Log scale, International 1/4-inch rule.

^{2/} Ten-inch hardwoods are not included since they are below sawtimber size.

^{3/} Less than 0.05 percent.

Table 6.--Net volume^{1/} of sawtimber by forest type and stand-size class, 1956

(In million board-feet)

| Forest type | Large sawtimber stands | Small sawtimber stands | Pole- timber stands | Seedling & sapling stands | Poorly stocked stands & unstocked areas | All stands |
|-----------------|------------------------------|------------------------------|---------------------------|---------------------------------|---|---------------|
| Softwood types: | | | | | | |
| Loblolly pine | 857.7 | 1,009.7 | 209.9 | 2.9 | -- | 2,080.2 |
| Shortleaf pine | 355.3 | 2,987.3 | 292.6 | 11.0 | 1.8 | 3,648.0 |
| Virginia pine | 22.1 | 642.2 | 103.7 | 26.7 | 0.7 | 795.4 |
| White pine | 13.6 | 4.6 | -- | -- | 6.1 | 24.3 |
| Total | 1,248.7 | 4,643.8 | 606.2 | 40.6 | 8.6 | 6,547.9 |
| Hardwood types: | | | | | | |
| Oak-pine | 382.9 | 584.8 | 240.7 | 29.2 | 2.0 | 1,239.6 |
| Oak-hickory | 2,112.5 | 1,421.9 | 631.6 | 46.6 | -- | 4,212.6 |
| Oak-gum-cypress | 813.8 | 510.2 | 119.5 | 6.6 | 11.1 | 1,461.2 |
| Total | 3,309.2 | 2,516.9 | 991.8 | 82.4 | 13.1 | 6,913.4 |
| All types | 4,557.9 | 7,160.7 | 1,598.0 | 123.0 | 21.7 | 13,461.3 |
| Percent | 33.8 | 53.2 | 11.9 | 0.9 | 0.2 | 100.0 |

^{1/} Log scale, International 1/4-inch rule.

Table 7.--Net volume of sawtimber by species group, log grade, and tree-size class, 1956

PINE

| Log grade | 10 - 14 inches ^{1/} | | 16+ inches | | All trees | |
|-----------|----------------------------------|----------------|----------------------------------|----------------|----------------------------------|----------------|
| | <u>Million</u> <u>bd.-ft.</u> | <u>Percent</u> | <u>Million</u> <u>bd.-ft.</u> | <u>Percent</u> | <u>Million</u> <u>bd.-ft.</u> | <u>Percent</u> |
| Grade 1 | -- | -- | 44.1 | 3.2 | 44.1 | 0.7 |
| Grade 2 | 450.9 | 8.9 | 274.0 | 19.9 | 724.9 | 11.2 |
| Grade 3 | 3,495.5 | 69.0 | 721.5 | 52.4 | 4,217.0 | 65.5 |
| Grade 4 | 1,119.5 | 22.1 | 337.3 | 24.5 | 1,456.8 | 22.6 |
| Total | 5,065.9 | 100.0 | 1,376.9 | 100.0 | 6,442.8 | 100.0 |

OTHER SOFTWOODS

| | | | | | | |
|---------|------|-------|------|-------|------|-------|
| Grade 1 | -- | -- | -- | -- | -- | (2/) |
| Grade 2 | 0.7 | 1.5 | 5.7 | 39.1 | 6.4 | 10.4 |
| Grade 3 | 33.8 | 71.5 | 5.4 | 36.5 | 39.2 | 63.3 |
| Grade 4 | 12.7 | 27.0 | 3.6 | 24.4 | 16.3 | 26.3 |
| Total | 47.2 | 100.0 | 14.7 | 100.0 | 61.9 | 100.0 |

SOFT HARDWOODS

| | | | | | | |
|---------|---------|-------|---------|-------|---------|-------|
| Grade 1 | -- | -- | 188.0 | 13.5 | 188.0 | 7.0 |
| Grade 2 | 34.5 | 2.7 | 272.9 | 19.6 | 307.4 | 11.5 |
| Grade 3 | 430.9 | 33.7 | 373.2 | 26.8 | 804.1 | 30.1 |
| Grade 4 | 813.3 | 63.6 | 558.3 | 40.1 | 1,371.6 | 51.4 |
| Total | 1,278.7 | 100.0 | 1,392.4 | 100.0 | 2,671.1 | 100.0 |

HARD HARDWOODS

| | | | | | | |
|---------|---------|-------|---------|-------|---------|-------|
| Grade 1 | -- | -- | 315.4 | 14.5 | 315.4 | 7.4 |
| Grade 2 | 99.2 | 4.7 | 528.6 | 24.3 | 627.8 | 14.6 |
| Grade 3 | 310.2 | 14.7 | 385.0 | 17.7 | 695.2 | 16.2 |
| Grade 4 | 1,700.9 | 80.6 | 946.2 | 43.5 | 2,647.1 | 61.8 |
| Total | 2,110.3 | 100.0 | 2,175.2 | 100.0 | 4,285.5 | 100.0 |

^{1/} Ten-inch hardwoods not included since they are below sawtimber size.

^{2/} Insufficient sample.

Table 8.--Net volume^{1/} of all timber by species and stand-size class, 1956

(In thousand cords)

| GROWING STOCK | | | | | | |
|--------------------------------|------------------------------|------------------------------|---------------------------|---------------------------------|---|---------------|
| Species | Large sawtimber stands | Small sawtimber stands | Pole- timber stands | Seedling & sapling stands | Poorly stocked stands & unstocked areas | All stands |
| Softwoods: | | | | | | |
| Longleaf pine | 65 | 12 | 16 | -- | -- | 93 |
| Loblolly pine | 1,675 | 4,083 | 2,395 | 66 | 2 | 8,221 |
| Shortleaf pine | 1,109 | 13,743 | 5,810 | 228 | 6 | 20,896 |
| Virginia pine | 248 | 2,734 | 2,146 | 11 | 8 | 5,147 |
| Total | 3,097 | 20,572 | 10,367 | 305 | 16 | 34,357 |
| White pine | 23 | 14 | 3 | -- | 14 | 54 |
| Redcedar | 69 | 153 | 199 | 21 | 1 | 443 |
| Total sftwds. | 3,189 | 20,739 | 10,569 | 326 | 31 | 34,854 |
| Hardwoods: | | | | | | |
| Blackgum | 299 | 260 | 309 | 6 | 34 | 908 |
| Sweetgum | 1,358 | 1,856 | 1,101 | 66 | -- | 4,381 |
| Yellow-poplar | 1,897 | 1,971 | 770 | 102 | -- | 4,740 |
| Soft maple | 437 | 678 | 419 | 20 | 4 | 1,558 |
| Other soft hwdws. | 620 | 310 | 322 | 15 | 13 | 1,280 |
| Total | 4,611 | 5,075 | 2,921 | 209 | 51 | 12,867 |
| White & swamp chestnut oaks | 2,154 | 2,440 | 1,754 | 91 | 4 | 6,443 |
| Other white oaks | 588 | 1,148 | 1,011 | 9 | -- | 2,756 |
| No. red & swamp red oaks | 466 | 481 | 483 | 21 | -- | 1,451 |
| Other red oaks | 1,177 | 2,084 | 1,847 | 63 | -- | 5,171 |
| Hickory | 1,189 | 1,439 | 1,105 | 35 | -- | 3,768 |
| Ash | 426 | 375 | 259 | -- | -- | 1,060 |
| Beech | 335 | 62 | 182 | -- | -- | 579 |
| Sugar maple | 6 | 10 | 3 | -- | -- | 19 |
| Black walnut | 76 | 31 | 7 | -- | -- | 114 |
| Dogwood, persimmon | 81 | 96 | 192 | 11 | -- | 380 |
| Other hard hwdws. | 383 | 408 | 241 | 30 | -- | 1,062 |
| Total | 6,881 | 8,574 | 7,084 | 260 | 4 | 22,803 |
| Total hwdws. | 11,492 | 13,649 | 10,005 | 469 | 55 | 35,670 |
| All species | 14,681 | 34,388 | 20,574 | 795 | 86 | 70,524 |
| Percent | 20.8 | 48.8 | 29.2 | 1.1 | 0.1 | 100.0 |

OTHER MATERIAL

| | | | | | | |
|-------------------------|-------|-------|-------|-----|-----|--------|
| Sound culls: | | | | | | |
| Softwoods | 69 | 598 | 1,354 | 338 | 64 | 2,423 |
| Hardwoods ^{2/} | 1,522 | 2,220 | 2,704 | 389 | 68 | 6,903 |
| Rotten culls | 173 | 344 | 518 | 77 | 4 | 1,116 |
| Hardwood limbs | 777 | 454 | 257 | 45 | 6 | 1,539 |
| Total other material | 2,541 | 3,616 | 4,833 | 849 | 142 | 11,981 |

^{1/} Sound wood and bark.^{2/} Includes noncommercial species.

Table 9.--Net volume^{1/} of all timber by species and diameter class, 1956

(In thousand cords)

| Species | Diameter class | | | | | | All diameters |
|-----------------------------|----------------|----------|-----------|-----------|--------------|------------|---------------|
| | 6 inches | 8 inches | 10 inches | 12 inches | 14-18 inches | 20+ inches | |
| Softwoods: | | | | | | | |
| Longleaf pine | -- | -- | 21 | -- | 54 | 18 | 93 |
| Loblolly pine | 1,462 | 1,789 | 1,452 | 1,122 | 1,850 | 546 | 8,221 |
| Shortleaf pine | 4,758 | 5,847 | 4,491 | 3,281 | 2,268 | 251 | 20,896 |
| Virginia pine | 1,339 | 1,524 | 960 | 696 | 599 | 29 | 5,147 |
| Total | 7,559 | 9,160 | 6,924 | 5,099 | 4,771 | 844 | 34,357 |
| White pine | -- | -- | 22 | 12 | -- | 20 | 54 |
| Redcedar | 255 | 99 | 34 | 25 | 30 | -- | 443 |
| Total sftwds. | 7,814 | 9,259 | 6,980 | 5,136 | 4,801 | 864 | 34,854 |
| Hardwoods: | | | | | | | |
| Blackgum | 144 | 192 | 243 | 165 | 164 | -- | 908 |
| Sweetgum | 729 | 724 | 716 | 612 | 1,192 | 408 | 4,381 |
| Yellow-poplar | 555 | 566 | 637 | 834 | 1,463 | 685 | 4,740 |
| Soft maple | 287 | 399 | 275 | 225 | 261 | 111 | 1,558 |
| Other soft hwdws. | 174 | 187 | 96 | 112 | 390 | 321 | 1,280 |
| Total | 1,889 | 2,068 | 1,967 | 1,948 | 3,470 | 1,525 | 12,867 |
| White & swamp chestnut oaks | 706 | 1,055 | 1,263 | 926 | 1,726 | 767 | 6,443 |
| Other white oaks | 366 | 634 | 578 | 456 | 557 | 165 | 2,756 |
| No. red & swamp red oaks | 122 | 298 | 186 | 238 | 440 | 167 | 1,451 |
| Other red oaks | 691 | 818 | 1,094 | 855 | 1,282 | 431 | 5,171 |
| Hickory | 328 | 609 | 636 | 723 | 1,132 | 340 | 3,768 |
| Ash | 117 | 306 | 104 | 214 | 247 | 72 | 1,060 |
| Beech | 67 | 73 | 123 | 49 | 144 | 123 | 579 |
| Sugar maple | -- | -- | -- | 13 | 6 | -- | 19 |
| Black walnut | 6 | 24 | 40 | 19 | 25 | -- | 114 |
| Dogwood, persimmon | 317 | 35 | -- | 17 | 11 | -- | 380 |
| Other hard hwdws. | 133 | 161 | 232 | 146 | 282 | 108 | 1,062 |
| Total | 2,853 | 4,013 | 4,256 | 3,656 | 5,852 | 2,173 | 22,803 |
| Total hwdws. | 4,742 | 6,081 | 6,223 | 5,604 | 9,322 | 3,698 | 35,670 |
| All species | 12,556 | 15,340 | 13,203 | 10,740 | 14,123 | 4,562 | 70,524 |
| Percent | 17.8 | 21.8 | 18.7 | 15.2 | 20.0 | 6.5 | 100.0 |

OTHER MATERIAL

| | | | | | | | |
|-------------------------|-------|-------|-------|-------|-------|-------|--------|
| Sound culls: | | | | | | | |
| Softwoods | 691 | 575 | 585 | 315 | 244 | 13 | 2,423 |
| Hardwoods ^{2/} | 1,630 | 1,447 | 1,185 | 588 | 1,285 | 768 | 6,903 |
| Rotten culls | 223 | 164 | 120 | 123 | 230 | 256 | 1,116 |
| Hardwood limbs | -- | -- | -- | 184 | 661 | 694 | 1,539 |
| Total other material | 2,544 | 2,186 | 1,890 | 1,210 | 2,420 | 1,731 | 11,981 |

^{1/} Sound wood and bark.^{2/} Includes noncommercial species.

Table 10.--Net volume^{1/} of all timber by species and class of material, 1956

(In thousand cords)

| Species | Growing stock | | | | Other material | |
|-----------------------------|-----------------|-------------|-------------------|-------------------|---------------------------|--------------|
| | Sawtimber trees | | Pole-timber trees | Total sound trees | Sound culls ^{2/} | Rotten culls |
| | Saw-log portion | Upper stems | | | | |
| Softwoods: | | | | | | |
| Longleaf pine | 80 | 13 | -- | 93 | 8 | -- |
| Loblolly pine | 4,136 | 834 | 3,251 | 8,221 | 172 | -- |
| Shortleaf pine | 8,642 | 1,649 | 10,605 | 20,896 | 546 | 7 |
| Virginia pine | 1,768 | 516 | 2,863 | 5,147 | 1,624 | 14 |
| Total | 14,626 | 3,012 | 16,719 | 34,357 | 2,350 | 21 |
| White pine | 40 | 14 | -- | 54 | 1 | -- |
| Redcedar | 78 | 11 | 354 | 443 | 72 | 1 |
| Total sftwds. | 14,744 | 3,037 | 17,073 | 34,854 | 2,423 | 22 |
| Hardwoods: | | | | | | |
| Blackgum | 237 | 92 | 579 | 908 | 345 | 169 |
| Sweetgum | 1,768 | 444 | 2,169 | 4,381 | 553 | 79 |
| Yellow-poplar | 2,373 | 609 | 1,758 | 4,740 | 343 | 92 |
| Soft maple | 392 | 205 | 961 | 1,558 | 1,217 | 188 |
| Other soft hdwds. | 619 | 204 | 457 | 1,280 | 567 | 29 |
| Total | 5,389 | 1,554 | 5,924 | 12,867 | 3,025 | 557 |
| White & swamp chestnut oaks | 2,599 | 820 | 3,024 | 6,443 | 773 | 86 |
| Other white oaks | 822 | 356 | 1,578 | 2,756 | 1,022 | 149 |
| No. red & swamp red oaks | 640 | 205 | 606 | 1,451 | 292 | 56 |
| Other red oaks | 1,894 | 674 | 2,603 | 5,171 | 761 | 179 |
| Hickory | 1,627 | 568 | 1,573 | 3,768 | 514 | 77 |
| Ash | 385 | 148 | 527 | 1,060 | 317 | 16 |
| Beech | 229 | 87 | 263 | 579 | 239 | 32 |
| Sugar maple | 12 | 7 | -- | 19 | 22 | -- |
| Black walnut | 34 | 10 | 70 | 114 | 41 | 1 |
| Dogwood, persimmon | 17 | 11 | 352 | 380 | 226 | 50 |
| Scrub oak ^{3/} | -- | -- | -- | -- | 444 | 31 |
| Other hard hdwds. | 351 | 185 | 526 | 1,062 | 582 | 44 |
| Total | 8,610 | 3,071 | 11,122 | 22,803 | 5,233 | 721 |
| Total hdwds. | 13,999 | 4,625 | 17,046 | 35,670 | 8,258 | 1,278 |
| All species | 28,743 | 7,662 | 34,119 | 70,524 | 10,681 | 1,300 |
| Percent | 40.7 | 10.9 | 48.4 | 100.0 | 89.1 | 10.9 |

^{1/} Sound wood and bark.^{2/} Includes limb volume of hardwood sawtimber trees.^{3/} Includes noncommercial species.

Table 11.--Net volume^{1/} of all timber by forest type and stand-size class, 1956

(In thousand cords)

| GROWING STOCK | | | | | | |
|-----------------|------------------------------|------------------------------|---------------------------|---------------------------------|---|---------------|
| Forest type | Large sawtimber stands | Small sawtimber stands | Pole- timber stands | Seedling & sapling stands | Poorly stocked stands & unstocked areas | All stands |
| Softwood types: | | | | | | |
| Loblolly pine | 2,184 | 4,467 | 2,788 | 66 | -- | 9,505 |
| Shortleaf pine | 1,132 | 14,861 | 5,015 | 89 | 6 | 21,103 |
| Virginia pine | 68 | 2,924 | 2,145 | 184 | 8 | 5,329 |
| White pine | 59 | 19 | -- | -- | 18 | 96 |
| Total | 3,443 | 22,271 | 9,948 | 339 | 32 | 36,033 |
| Hardwood types: | | | | | | |
| Oak-pine | 1,197 | 2,724 | 2,750 | 160 | 6 | 6,837 |
| Oak-hickory | 7,301 | 7,059 | 6,670 | 221 | -- | 21,251 |
| Oak-gum-cypress | 2,740 | 2,334 | 1,206 | 75 | 48 | 6,403 |
| Total | 11,238 | 12,117 | 10,626 | 456 | 54 | 34,491 |
| All types | 14,681 | 34,388 | 20,574 | 795 | 86 | 70,524 |
| Percent | 20.8 | 48.8 | 29.2 | 1.1 | 0.1 | 100.0 |

OTHER MATERIAL

| | | | | | | |
|-----------------|-------|-------|-------|-----|-----|--------|
| Softwood types: | | | | | | |
| Loblolly pine | 147 | 246 | 299 | 2 | -- | 694 |
| Shortleaf pine | 106 | 706 | 712 | 119 | 12 | 1,655 |
| Virginia pine | 15 | 448 | 759 | 296 | 48 | 1,566 |
| White pine | 4 | -- | -- | -- | -- | 4 |
| Total | 272 | 1,400 | 1,770 | 417 | 60 | 3,919 |
| Hardwood types: | | | | | | |
| Oak-pine | 259 | 398 | 769 | 148 | 9 | 1,583 |
| Oak-hickory | 1,303 | 1,374 | 1,770 | 184 | 15 | 4,646 |
| Oak-gum-cypress | 707 | 444 | 524 | 100 | 58 | 1,833 |
| Total | 2,269 | 2,216 | 3,063 | 432 | 82 | 8,062 |
| All types | 2,541 | 3,616 | 4,833 | 849 | 142 | 11,981 |
| Percent | 21.2 | 30.2 | 40.3 | 7.1 | 1.2 | 100.0 |

^{1/} Sound wood and bark.

Table 12.--Net volume^{1/} of all timber by species and diameter class, 1956

(In million cubic feet)

| GROWING STOCK | | | | | | | |
|-----------------------------|----------------|----------|-----------|-----------|--------------|------------|---------------|
| Species | Diameter class | | | | | | All diameters |
| | 6 inches | 8 inches | 10 inches | 12 inches | 14-18 inches | 20+ inches | |
| Softwoods: | | | | | | | |
| Longleaf pine | -- | -- | 1.5 | -- | 4.4 | 1.5 | 7.4 |
| Loblolly pine | 85.4 | 119.5 | 110.3 | 85.0 | 148.8 | 46.6 | 595.6 |
| Shortleaf pine | 278.3 | 392.4 | 341.6 | 247.4 | 179.0 | 21.4 | 1,460.1 |
| Virginia pine | 78.5 | 102.6 | 70.8 | 51.7 | 48.0 | 2.5 | 354.1 |
| Total | 442.2 | 614.5 | 524.2 | 384.1 | 380.2 | 72.0 | 2,417.2 |
| White pine | -- | -- | 1.6 | 1.0 | -- | 1.9 | 4.5 |
| Redcedar | 16.2 | 7.5 | 2.9 | 2.2 | 2.8 | -- | 31.6 |
| Total sftwds. | 458.4 | 622.0 | 528.7 | 387.3 | 383.0 | 73.9 | 2,453.3 |
| Hardwoods: | | | | | | | |
| Blackgum | 8.2 | 12.7 | 17.5 | 12.6 | 13.0 | -- | 64.0 |
| Sweetgum | 41.2 | 47.7 | 51.6 | 46.5 | 95.7 | 33.7 | 316.4 |
| Yellow-poplar | 31.6 | 37.4 | 53.1 | 62.5 | 116.6 | 56.1 | 357.3 |
| Soft maple | 16.6 | 26.3 | 20.0 | 16.9 | 20.6 | 9.2 | 109.6 |
| Other soft hwdws. | 10.0 | 12.3 | 6.9 | 8.5 | 30.9 | 26.5 | 95.1 |
| Total | 107.6 | 136.4 | 149.1 | 147.0 | 276.8 | 125.5 | 942.4 |
| White & swamp chestnut oaks | 40.2 | 69.6 | 90.5 | 70.2 | 137.2 | 63.1 | 470.8 |
| Other white oaks | 21.1 | 41.7 | 41.8 | 33.9 | 44.8 | 13.6 | 196.9 |
| No. red & swamp red oaks | 6.9 | 19.6 | 13.4 | 18.4 | 35.1 | 13.9 | 107.3 |
| Other red oaks | 39.9 | 54.2 | 78.3 | 64.2 | 101.5 | 35.3 | 373.4 |
| Hickory | 18.5 | 40.3 | 45.8 | 54.3 | 90.1 | 27.9 | 276.9 |
| Ash | 6.8 | 20.1 | 7.5 | 16.0 | 19.5 | 6.0 | 75.9 |
| Beech | 3.9 | 4.8 | 8.8 | 3.6 | 11.7 | 10.1 | 42.9 |
| Sugar maple | -- | -- | -- | 0.9 | 0.5 | -- | 1.4 |
| Black walnut | 0.3 | 1.6 | 2.9 | 1.6 | 1.9 | -- | 8.3 |
| Dogwood, persimmon | 18.3 | 2.3 | -- | 1.3 | 0.9 | -- | 22.8 |
| Other hard hwdws. | 7.7 | 10.5 | 16.7 | 11.0 | 22.4 | 9.0 | 77.3 |
| Total | 163.6 | 264.7 | 305.7 | 275.4 | 465.6 | 178.9 | 1,653.9 |
| Total hwdws. | 271.2 | 401.1 | 454.8 | 422.4 | 742.4 | 304.4 | 2,596.3 |
| All species | 729.6 | 1,023.1 | 983.5 | 809.7 | 1,125.4 | 378.3 | 5,049.6 |
| Percent | 14.4 | 20.3 | 19.5 | 16.0 | 22.3 | 7.5 | 100.0 |

OTHER MATERIAL

| | | | | | | | |
|----------------------|-------|-------|-------|------|-------|-------|-------|
| Sound culls: | | | | | | | |
| Softwoods | 41.0 | 38.9 | 44.1 | 24.5 | 19.3 | 1.1 | 168.9 |
| Hardwoods | 92.2 | 95.3 | 85.4 | 44.3 | 102.6 | 63.4 | 483.2 |
| Rotten culls | 12.7 | 10.9 | 8.5 | 8.4 | 19.3 | 21.0 | 80.8 |
| Hardwood limbs | -- | -- | -- | 15.9 | 50.3 | 58.1 | 124.3 |
| Total other material | 145.9 | 145.1 | 138.0 | 93.1 | 191.5 | 143.6 | 857.2 |

^{1/} Excluding bark.

Table 13.--Net volume^{1/} of all timber by species and class of material, 1956

(In million cubic feet)

| Species | Growing stock | | | | Other material | |
|-----------------------------|-----------------|-------------|-------------------|-------------------|---------------------------|--------------|
| | Sawtimber trees | | Pole-timber trees | Total sound trees | Sound culls ^{2/} | Rotten culls |
| | Saw-log portion | Upper stems | | | | |
| Softwoods: | | | | | | |
| Longleaf pine | 6.2 | 1.2 | -- | 7.4 | 0.7 | -- |
| Loblolly pine | 320.6 | 70.1 | 204.9 | 595.6 | 12.3 | -- |
| Shortleaf pine | 647.2 | 142.2 | 670.7 | 1,460.1 | 38.9 | 0.6 |
| Virginia pine | 134.0 | 39.0 | 181.1 | 354.1 | 111.4 | 0.9 |
| Total | 1,108.0 | 252.5 | 1,056.7 | 2,417.2 | 163.3 | 1.5 |
| White pine | 3.6 | 0.9 | -- | 4.5 | 0.1 | -- |
| Redcedar | 6.8 | 1.1 | 23.7 | 31.6 | 5.5 | 0.1 |
| Total sftwds. | 1,118.4 | 254.5 | 1,080.4 | 2,453.3 | 168.9 | 1.6 |
| Hardwoods: | | | | | | |
| Blackgum | 18.8 | 6.8 | 38.4 | 64.0 | 22.6 | 11.9 |
| Sweetgum | 141.7 | 34.2 | 140.5 | 316.4 | 40.8 | 5.8 |
| Yellow-poplar | 189.3 | 45.9 | 122.1 | 357.3 | 25.7 | 7.1 |
| Soft maple | 31.6 | 15.1 | 62.9 | 109.6 | 85.9 | 14.0 |
| Other soft hdwds. | 49.9 | 16.0 | 29.2 | 95.1 | 41.0 | 2.2 |
| Total | 431.3 | 118.0 | 393.1 | 942.4 | 216.0 | 41.0 |
| White & swamp chestnut oaks | 206.8 | 63.7 | 200.3 | 470.8 | 57.4 | 6.9 |
| Other white oaks | 64.6 | 27.7 | 104.6 | 196.9 | 75.8 | 11.6 |
| No. red & swamp red oaks | 51.1 | 16.3 | 39.9 | 107.3 | 21.0 | 4.7 |
| Other red oaks | 149.5 | 51.5 | 172.4 | 373.4 | 57.5 | 13.6 |
| Hickory | 129.5 | 42.8 | 104.6 | 276.9 | 37.9 | 5.8 |
| Ash | 30.2 | 11.3 | 34.4 | 75.9 | 22.7 | 1.2 |
| Beech | 18.5 | 6.9 | 17.5 | 42.9 | 16.7 | 2.4 |
| Sugar maple | 0.9 | 0.5 | -- | 1.4 | 1.4 | -- |
| Black walnut | 2.6 | 0.9 | 4.8 | 8.3 | 3.4 | 0.1 |
| Dogwood, persimmon | 1.4 | 0.8 | 20.6 | 22.8 | 13.4 | 2.9 |
| Scrub oak ^{3/} | -- | -- | -- | -- | 28.8 | 2.0 |
| Other hard hdwds. | 28.9 | 13.5 | 34.9 | 77.3 | 39.2 | 3.3 |
| Total | 684.0 | 235.9 | 734.0 | 1,653.9 | 375.2 | 54.5 |
| Total hdwds. | 1,115.3 | 353.9 | 1,127.1 | 2,596.3 | 591.2 | 95.5 |
| All species | 2,233.7 | 608.4 | 2,207.5 | 5,049.6 | 760.1 | 97.1 |
| Percent | 44.2 | 12.1 | 43.7 | 100.0 | 88.7 | 11.3 |

^{1/} Excluding bark.^{2/} Includes limb volume of hardwood sawtimber trees.^{3/} Includes noncommercial species.

Table 14.--Average volume^{1/} per acre of sawtimber by forest type,
species group, and stand-size class, 1956

(In board-feet)

| Forest type and species group | Large sawtimber stands | Small sawtimber stands | Pole- timber stands | Other stand sizes | All stands |
|-------------------------------------|------------------------------|------------------------------|---------------------------|-------------------------|---------------|
| Loblolly pine | | | | | |
| Softwood | 8,858 | 4,313 | 574 | -- | 2,572 |
| Hardwood | 2,322 | 565 | 85 | 36 | 477 |
| Shortleaf pine | | | | | |
| Softwood | 6,440 | 4,502 | 461 | 80 | 2,393 |
| Hardwood | 1,782 | 502 | 61 | 5 | 304 |
| Virginia pine | | | | | |
| Softwood | 4,790 | 4,023 | 361 | 78 | 1,193 |
| Hardwood | 1,280 | 422 | 57 | 63 | 156 |
| Oak-pine | | | | | |
| Softwood | 1,966 | 1,352 | 298 | 122 | 678 |
| Hardwood | 3,986 | 1,896 | 353 | 151 | 1,023 |
| Oak-hickory | | | | | |
| Softwood | 198 | 191 | 83 | 13 | 126 |
| Hardwood | 4,956 | 2,873 | 664 | 208 | 2,056 |
| Oak-gum-cypress | | | | | |
| Softwood | 81 | 266 | 41 | 5 | 99 |
| Hardwood | 5,444 | 3,880 | 676 | 193 | 2,677 |
| All types | | | | | |
| Softwood | 1,610 | 2,637 | 286 | 58 | 1,117 |
| Hardwood | 4,472 | 1,531 | 350 | 113 | 1,195 |

^{1/} Log scale, International 1/4-inch rule.

Table 15.--Average volume^{1/} per acre of all trees by forest type, species group,
and stand-size class, 1956

(In standard cords)

| Forest type and species group | Large sawtimber stands | | Small sawtimber stands | | Pole- timber stands | | Other stand sizes | | All stands | |
|-------------------------------------|------------------------------|--------------------|------------------------------|---------------|---------------------------|---------------|-------------------------|---------------|---------------|---------------|
| | Sound ^{2/} | Cull ^{3/} | Sound | Cull | Sound | Cull | Sound | Cull | Sound | Cull |
| Loblolly pine | | | | | | | | | | |
| Softwood | 20.5 | 0.2 | 17.8 | 0.2 | 7.3 | 0.4 | 0.5 | -- | 11.2 | 0.3 |
| Hardwood | 8.0 | 1.7 | 3.8 | 0.9 | 1.4 | 0.5 | 0.3 | (<u>4/</u>) | 2.7 | 0.7 |
| Shortleaf pine | | | | | | | | | | |
| Softwood | 17.1 | 0.3 | 21.6 | 0.4 | 7.7 | 0.8 | 0.6 | 0.5 | 13.3 | 0.6 |
| Hardwood | 9.1 | 2.2 | 3.3 | 0.8 | 1.2 | 0.5 | (<u>4/</u>) | 0.3 | 2.3 | 0.7 |
| Virginia pine | | | | | | | | | | |
| Softwood | 10.4 | -- | 18.3 | 1.9 | 7.4 | 2.8 | 0.4 | 1.3 | 7.8 | 2.1 |
| Hardwood | 8.2 | 4.1 | 1.9 | 1.2 | 1.2 | 0.2 | 0.6 | 0.5 | 1.2 | 0.6 |
| Oak-pine | | | | | | | | | | |
| Softwood | 6.2 | 0.5 | 5.3 | 0.1 | 3.4 | 0.2 | 0.7 | 0.5 | 3.7 | 0.2 |
| Hardwood | 12.4 | 3.5 | 9.9 | 2.1 | 4.0 | 1.9 | 0.8 | 0.9 | 5.7 | 2.0 |
| Oak-hickory | | | | | | | | | | |
| Softwood | 0.8 | (<u>4/</u>) | 1.0 | (<u>4/</u>) | 0.9 | (<u>4/</u>) | 0.3 | 0.1 | 0.9 | (<u>4/</u>) |
| Hardwood | 17.0 | <u>3.1</u> | 14.2 | <u>2.9</u> | 7.0 | <u>2.0</u> | 0.8 | 0.9 | 10.2 | <u>2.4</u> |
| Oak-gum-cypress | | | | | | | | | | |
| Softwood | 0.3 | -- | 0.7 | -- | 0.2 | 0.1 | (<u>4/</u>) | -- | 0.3 | (<u>4/</u>) |
| Hardwood | 18.3 | 4.8 | 18.3 | 3.6 | 7.0 | 3.1 | <u>1.4</u> | 1.8 | 11.9 | <u>3.5</u> |
| All types | | | | | | | | | | |
| Softwood | 4.3 | 0.1 | 12.1 | 0.4 | 4.2 | 0.5 | 0.4 | 0.5 | 6.0 | 0.4 |
| Hardwood | 15.3 | 3.3 | 7.9 | 1.8 | 4.0 | 1.4 | 0.6 | 0.7 | 6.1 | 1.6 |

^{1/} Sound wood and bark.

^{2/} Sound trees.

^{3/} Cull trees.

^{4/} Less than 0.05 cord per acre.

Table 16.--Number of trees^{1/} by species group, quality class, and tree size, 1956

(In thousand trees)

| Species group and quality class | Sapling-size trees | Pole-size trees | Small sawtimber trees | Large sawtimber trees | All trees |
|---------------------------------|--------------------|-----------------|-----------------------|-----------------------|-----------|
| Yellow pines: | | | | | |
| Sound trees | 719,902 | 268,215 | 75,180 | 4,921 | 1,068,218 |
| Sound culls | (2/) | 28,865 | 7,665 | 349 | 36,879 |
| Rotten culls | (2/) | 143 | 88 | 45 | 276 |
| Total | 719,902 | 297,223 | 82,933 | 5,315 | 1,105,373 |
| Other softwoods: | | | | | |
| Sound trees | 81,806 | 8,800 | 920 | 38 | 91,564 |
| Sound culls | (2/) | 895 | 326 | -- | 1,221 |
| Rotten culls | (2/) | -- | 11 | -- | 11 |
| Total | 81,806 | 9,695 | 1,257 | 38 | 92,796 |
| Soft hardwoods: | | | | | |
| Sound trees | 373,096 | 83,861 | 14,062 | 5,246 | 476,265 |
| Sound culls | (2/) | 29,071 | 2,590 | 1,281 | 32,942 |
| Rotten culls | (2/) | 5,119 | 793 | 613 | 6,525 |
| Total | 373,096 | 118,051 | 17,445 | 7,140 | 515,732 |
| Hard hardwoods: | | | | | |
| Sound trees | 623,658 | 158,206 | 27,031 | 9,708 | 818,603 |
| Sound culls | (2/) | 54,710 | 3,545 | 1,877 | 60,132 |
| Rotten culls | (2/) | 5,996 | 1,580 | 1,225 | 8,801 |
| Total | 623,658 | 218,912 | 32,156 | 12,810 | 887,536 |
| All species | 1,798,462 | 643,881 | 133,791 | 25,303 | 2,601,437 |

^{1/} All trees 1.0 inch d.b.h. and larger.

^{2/} Data not collected.

Table 17.--Area^{1/} of seedling, sapling, and poorly stocked stands by
plantability class, 1956

(In thousand acres)

| Forest type | No planting required | Suitable for machine planting | Hand planting required | All classes |
|----------------|----------------------------|-------------------------------------|------------------------------|----------------|
| Loblolly pine | 80.0 | -- | -- | 80.0 |
| Shortleaf pine | 144.5 | -- | 7.2 | 151.7 |
| Virginia pine | 184.8 | 2.7 | 5.7 | 193.2 |
| White pine | 4.3 | -- | -- | 4.3 |
| Oak-pine | 114.3 | -- | -- | 114.3 |
| Oak-hickory | 189.1 | -- | 12.5 | 201.6 |
| All types | 717.0 | 2.7 | 25.4 | 745.1 |
| Percent | 96.2 | 0.4 | 3.4 | 100.0 |

^{1/} Excludes 9,200 acres on which planting would be impractical because of existing dense cover of brush.

Table 18.--Stocking on commercial forest area by forest type and tree-size class, 1956

(In thousand acres)

GROWING STOCK OF ALL SIZES

| Forest type | Non-stocked 0-9% | Poor stocking 10-39% | Medium stocking 40-69% | Good stocking 70-100% | Total area |
|-----------------|---------------------|----------------------------|------------------------------|-----------------------------|---------------|
| Loblolly pine | 4.7 | 61.0 | 114.1 | 502.5 | 682.3 |
| Shortleaf pine | 15.6 | 76.3 | 204.6 | 1,056.2 | 1,352.7 |
| Virginia pine | 29.6 | 106.6 | 129.3 | 324.1 | 589.6 |
| White pine | 4.3 | -- | -- | 6.6 | 10.9 |
| Oak-pine | 2.2 | 88.9 | 245.6 | 392.1 | 728.8 |
| Oak-hickory | 34.6 | 282.7 | 698.8 | 914.3 | 1,930.4 |
| Oak-gum-cypress | 34.4 | 132.6 | 165.3 | 194.1 | 526.4 |
| All types | 125.4 | 748.1 | 1,557.7 | 3,389.9 | 5,821.1 |
| Percent | 2.2 | 12.8 | 26.8 | 58.2 | 100.0 |

SAWTIMBER GROWING STOCK

| | | | | | |
|-----------------|---------|---------|-------|-------|---------|
| Loblolly pine | 277.8 | 224.7 | 110.7 | 69.1 | 682.3 |
| Shortleaf pine | 547.7 | 413.7 | 235.6 | 155.7 | 1,352.7 |
| Virginia pine | 391.6 | 126.7 | 42.1 | 29.2 | 589.6 |
| White pine | 4.3 | 6.6 | -- | -- | 10.9 |
| Oak-pine | 339.4 | 309.1 | 72.4 | 7.9 | 728.8 |
| Oak-hickory | 709.9 | 901.2 | 287.7 | 31.6 | 1,930.4 |
| Oak-gum-cypress | 186.0 | 219.1 | 85.3 | 36.0 | 526.4 |
| All types | 2,456.7 | 2,201.1 | 833.8 | 329.5 | 5,821.1 |
| Percent | 42.2 | 37.8 | 14.3 | 5.7 | 100.0 |

Table 19.--Net annual growth by species group and unit of measure, 1956

| Species group | Sawtimber | Growing stock | |
|------------------|----------------------------|----------------------------|---------------------------|
| | <u>Million bd.-ft.</u> | <u>Million cu. ft.</u> | <u>Thousand cords</u> |
| So. yellow pines | 443.8 | 130.3 | 2,033 |
| Other softwoods | 2.0 | 1.3 | 21 |
| Soft hardwoods | 173.5 | 55.5 | 832 |
| Hard hardwoods | 206.0 | 73.2 | 1,106 |
| All species | 825.3 | 260.3 | 3,992 |

Table 20.--Net annual growth percentages for each species group and unit of measure, 1956

| Unit of measure | Southern yellow pines | Other softwoods | Soft hardwoods | Hard hardwoods | All species |
|-----------------|-----------------------|-----------------|----------------|----------------|-------------|
| Board-feet | 6.89 | 3.20 | 6.50 | 4.81 | 6.13 |
| Cubic feet | 5.39 | 3.65 | 5.90 | 4.42 | 5.15 |
| Standard cords | 5.92 | 4.23 | 6.47 | 4.85 | 5.66 |

Table 21.--Average growth per acre by forest type and stand-size class, 1956

| SAWTIMBER (In board-feet) | | | | |
|---------------------------|------------------|------------|--------------|------------|
| Forest type | Stand-size class | | | All stands |
| | Sawtimber | Poletimber | Other stands | |
| Loblolly pine | 483 | 113 | 2 | 254 |
| Shortleaf pine | 345 | 84 | 14 | 200 |
| Virginia pine | 265 | 36 | 6 | 84 |
| Oak-pine | 239 | 67 | 13 | 116 |
| Oak-hickory | 220 | 72 | 12 | 132 |
| Oak-gum-cypress | 264 | 47 | 12 | 152 |
| All types | 292 | 74 | 11 | 157 |

| GROWING STOCK (In standard cords) | | | | |
|-----------------------------------|-----|-----|-----|-----|
| Loblolly pine | 1.5 | 1.1 | 0.2 | 1.2 |
| Shortleaf pine | 1.2 | 0.9 | 0.1 | 1.0 |
| Virginia pine | 0.8 | 0.7 | 0.1 | 0.5 |
| Oak-pine | 0.8 | 0.5 | 0.1 | 0.6 |
| Oak-hickory | 0.8 | 0.5 | 0.1 | 0.6 |
| Oak-gum-cypress | 0.9 | 0.6 | 0.1 | 0.7 |
| All types | 1.0 | 0.7 | 0.1 | 0.7 |

| GROWING STOCK (In cubic feet) | | | | |
|-------------------------------|-------|------|------|------|
| Loblolly pine | 114.4 | 70.2 | 11.5 | 81.7 |
| Shortleaf pine | 88.7 | 59.3 | 6.0 | 67.2 |
| Virginia pine | 59.4 | 42.8 | 5.9 | 34.8 |
| Oak-pine | 59.7 | 35.8 | 6.5 | 39.2 |
| Oak-hickory | 56.2 | 35.9 | 6.8 | 41.9 |
| Oak-gum-cypress | 71.7 | 39.6 | 8.2 | 50.8 |
| All types | 73.7 | 46.4 | 7.1 | 52.3 |

Table 22.--Average annual drain by tree-size class and species group

| SAWTIMBER (In million board-feet) | | | | | |
|-----------------------------------|-----------|-------|-------------------|-------------------|----------------|
| Tree-size class | Softwoods | | Soft hardwoods | Hard hardwoods | All species |
| | Pine | Other | | | |
| Small sawtimber | 397.2 | 2.1 | 32.4 | 48.2 | 479.9 |
| Large sawtimber | 112.0 | 1.9 | 48.2 | 76.3 | 238.4 |
| All trees | 509.2 | 4.0 | 80.6 | 124.5 | 718.3 |

| GROWING STOCK (In thousand cords) | | | | | |
|-----------------------------------|-------|----|-----|-----|-------|
| Pole trees | 603 | 12 | 96 | 128 | 839 |
| Small sawtimber | 1,139 | 5 | 96 | 143 | 1,383 |
| Large sawtimber | 255 | 4 | 115 | 187 | 561 |
| All trees | 1,997 | 21 | 307 | 458 | 2,783 |

| GROWING STOCK (In million cubic feet) | | | | | |
|---------------------------------------|-------|-----|------|------|-------|
| Pole trees | 38.3 | 0.9 | 6.3 | 8.6 | 54.1 |
| Small sawtimber | 85.2 | 0.5 | 7.4 | 10.9 | 104.0 |
| Large sawtimber | 20.9 | 0.3 | 9.4 | 15.3 | 45.9 |
| All trees | 144.4 | 1.7 | 23.1 | 34.8 | 204.0 |

Table 23.--Net annual change in volume by species group, 1956

SAWTIMBER (In million board-feet)

| Item | Southern yellow pines | Other softwoods | Soft hardwoods | Hard hardwoods | All species |
|---------------------------|-----------------------|-----------------|----------------|----------------|-------------|
| Net volume, Jan. 1, 1956 | 6,442.8 | 61.9 | 2,671.1 | 4,285.5 | 13,461.3 |
| Total growth | 497.2 | 2.5 | 186.1 | 247.1 | 932.9 |
| Mortality | 53.4 | 0.5 | 12.6 | 41.1 | 107.6 |
| Net growth | 443.8 | 2.0 | 173.5 | 206.0 | 825.3 |
| Timber cut | 509.2 | 4.0 | 80.6 | 124.5 | 718.3 |
| Loss or gain | -65.4 | -2.0 | +92.9 | +81.5 | +107.0 |
| Net volume, Dec. 31, 1956 | 6,377.4 | 59.9 | 2,764.0 | 4,367.0 | 13,568.3 |
| Percent change | -1.0 | -3.2 | +3.5 | +1.9 | +0.8 |

GROWING STOCK (In thousand cords)

| | | | | | |
|---------------------------|--------|-----|--------|--------|--------|
| Net volume, Jan. 1, 1956 | 34,357 | 497 | 12,867 | 22,803 | 70,524 |
| Total growth | 2,257 | 24 | 906 | 1,248 | 4,435 |
| Mortality | 224 | 3 | 74 | 142 | 443 |
| Net growth | 2,033 | 21 | 832 | 1,106 | 3,992 |
| Timber cut | 1,997 | 21 | 307 | 458 | 2,783 |
| Loss or gain | +36 | 0 | +525 | +648 | +1,209 |
| Net volume, Dec. 31, 1956 | 34,393 | 497 | 13,392 | 23,451 | 71,733 |
| Percent change | +0.1 | 0.0 | +4.1 | +2.8 | +1.7 |

GROWING STOCK (In million cubic feet)

| | | | | | |
|---------------------------|---------|------|-------|---------|---------|
| Net volume, Jan. 1, 1956 | 2,417.2 | 36.1 | 942.4 | 1,653.9 | 5,049.6 |
| Total growth | 146.6 | 1.5 | 60.9 | 83.8 | 292.8 |
| Mortality | 16.3 | 0.2 | 5.4 | 10.6 | 32.5 |
| Net growth | 130.3 | 1.3 | 55.5 | 73.2 | 260.3 |
| Timber cut | 144.4 | 1.7 | 23.1 | 34.8 | 204.0 |
| Loss or gain | -14.1 | -0.4 | +32.4 | +38.4 | +56.3 |
| Net volume, Dec. 31, 1956 | 2,403.1 | 35.7 | 974.8 | 1,692.3 | 5,105.9 |
| Percent change | -0.6 | -1.1 | +3.4 | +2.3 | +1.1 |

Table 24.--County area by broad use class, 1956

| County | Total area ^{1/} | Nonforest area | | Forest land | | |
|-------------|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|----------------|
| | | Land | Water | Non- commercial | Commercial | |
| | <u>Thousand acres</u> | <u>Thousand acres</u> | <u>Thousand acres</u> | <u>Thousand acres</u> | <u>Thousand acres</u> | <u>Percent</u> |
| Alamance | 277.8 | 143.9 | 1.8 | -- | 132.1 | 47.9 |
| Alexander | 165.7 | 74.9 | 3.4 | -- | 87.4 | 53.9 |
| Anson | 343.0 | 133.3 | 3.2 | (2/) | 206.5 | 60.8 |
| Cabarrus | 230.4 | 141.2 | 0.2 | -- | 89.0 | 38.7 |
| Caswell | 278.4 | 107.0 | 0.7 | -- | 170.7 | 61.5 |
| Catawba | 263.7 | 158.9 | 5.4 | -- | 99.4 | 38.5 |
| Chatham | 452.5 | 96.8 | 1.2 | -- | 354.5 | 78.6 |
| Cleveland | 298.2 | 182.8 | 0.9 | (2/) | 114.5 | 38.5 |
| Davidson | 358.4 | 177.3 | 10.5 | -- | 170.6 | 49.0 |
| Davie | 169.0 | 92.1 | 0.9 | -- | 76.0 | 45.2 |
| Durham | 192.0 | 73.5 | 0.8 | -- | 117.7 | 61.6 |
| Forsyth | 271.4 | 135.1 | 1.2 | 1.3 | 133.8 | 49.5 |
| Franklin | 316.1 | 127.9 | 0.7 | -- | 187.5 | 59.4 |
| Gaston | 232.3 | 121.0 | 6.8 | -- | 104.5 | 46.3 |
| Granville | 347.5 | 127.7 | 1.6 | -- | 218.2 | 63.1 |
| Guilford | 417.3 | 237.2 | 3.0 | 0.1 | 177.0 | 42.7 |
| Iredell | 380.2 | 199.5 | 2.8 | -- | 177.9 | 47.1 |
| Lincoln | 197.8 | 108.6 | 1.1 | -- | 88.1 | 44.8 |
| Mecklenburg | 351.4 | 181.6 | 6.7 | 0.7 | 162.4 | 47.1 |
| Montgomery | 319.4 | 59.9 | 8.1 | (2/) | 251.4 | 80.8 |
| Orange | 254.7 | 97.9 | 0.2 | -- | 156.6 | 61.5 |
| Person | 256.0 | 103.7 | 0.6 | -- | 151.7 | 59.4 |
| Polk | 150.4 | 38.4 | 0.7 | -- | 111.3 | 74.3 |
| Randolph | 512.6 | 175.5 | 1.0 | -- | 336.1 | 65.7 |
| Rockingham | 366.1 | 169.8 | 0.8 | -- | 195.5 | 53.5 |
| Rowan | 337.3 | 177.6 | 13.9 | (2/) | 145.8 | 45.1 |
| Rutherford | 363.5 | 145.9 | 2.1 | (2/) | 215.5 | 59.6 |
| Stanly | 259.8 | 144.9 | 6.0 | 3.8 | 105.1 | 41.4 |
| Stokes | 293.8 | 107.5 | 0.5 | 3.9 | 181.9 | 62.0 |
| Surry | 344.3 | 129.9 | 1.2 | 0.9 | 212.3 | 61.9 |
| Union | 411.5 | 225.1 | 0.4 | (2/) | 186.0 | 45.2 |
| Vance | 172.1 | 75.9 | 11.6 | -- | 84.6 | 52.7 |
| Wake | 554.9 | 240.0 | 2.8 | 5.2 | 306.9 | 55.6 |
| Warren | 284.8 | 79.5 | 1.4 | 4.5 | 199.4 | 70.4 |
| Yadkin | 214.4 | 100.1 | 1.1 | -- | 113.2 | 53.1 |
| Unit total | 10,638.7 | 4,691.9 | 105.3 | 20.4 | 5,821.1 | 55.3 |

^{1/} Gross area from Bureau of the Census, 1950.^{2/} Less than 50 acres.

Table 25.--Ownership of commercial forest land by county, 1956

| County | Private | | Public | | | | | |
|-------------|---------------------------|----------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|----------------|
| | | | National forest | Other Federal | State | County, city, town | Total public | |
| | <u>Thousand acres</u> | <u>Percent</u> | <u>Thousand acres</u> | <u>Thousand acres</u> | <u>Thousand acres</u> | <u>Thousand acres</u> | <u>Thousand acres</u> | <u>Percent</u> |
| Alamance | 132.0 | 99.9 | -- | -- | -- | 0.1 | 0.1 | 0.1 |
| Alexander | 87.4 | 100.0 | -- | -- | -- | (1/) | (1/) | -- |
| Anson | 206.3 | 99.9 | -- | -- | 0.1 | 0.1 | 0.2 | 0.1 |
| Cabarrus | 88.6 | 99.6 | -- | -- | -- | 0.4 | 0.4 | 0.4 |
| Caswell | 158.3 | 92.7 | 12.3 | -- | -- | 0.1 | 12.4 | 7.3 |
| Catawba | 99.2 | 99.8 | -- | -- | (1/) | 0.2 | 0.2 | 0.2 |
| Chatham | 352.8 | 99.5 | -- | -- | 1.6 | 0.1 | 1.7 | 0.5 |
| Cleveland | 114.5 | 100.0 | -- | -- | -- | (1/) | (1/) | -- |
| Davidson | 169.4 | 99.3 | 1.0 | -- | -- | 0.2 | 1.2 | 0.7 |
| Davie | 76.0 | 100.0 | -- | -- | (1/) | (1/) | (1/) | -- |
| Durham | 112.7 | 95.8 | -- | 1.2 | 3.4 | 0.4 | 5.0 | 4.2 |
| Forsyth | 133.6 | 99.9 | -- | -- | -- | 0.2 | 0.2 | 0.1 |
| Franklin | 187.5 | 100.0 | -- | -- | (1/) | (1/) | (1/) | -- |
| Gaston | 104.4 | 99.9 | -- | -- | (1/) | 0.1 | 0.1 | 0.1 |
| Granville | 204.7 | 93.8 | -- | 2.5 | 10.9 | 0.1 | 13.5 | 6.2 |
| Guilford | 172.4 | 97.4 | -- | -- | 0.2 | 4.4 | 4.6 | 2.6 |
| Iredell | 177.7 | 99.9 | -- | -- | (1/) | 0.2 | 0.2 | 0.1 |
| Lincoln | 88.1 | 100.0 | -- | -- | (1/) | (1/) | (1/) | -- |
| Mecklenburg | 160.7 | 99.0 | -- | -- | 0.1 | 1.6 | 1.7 | 1.0 |
| Montgomery | 217.7 | 86.6 | 33.7 | -- | -- | (1/) | 33.7 | 13.4 |
| Orange | 154.9 | 98.9 | -- | -- | 1.7 | -- | 1.7 | 1.1 |
| Person | 151.4 | 99.8 | -- | -- | -- | 0.3 | 0.3 | 0.2 |
| Polk | 110.4 | 99.2 | -- | -- | -- | 0.9 | 0.9 | 0.8 |
| Randolph | 327.4 | 97.4 | 8.1 | -- | (1/) | 0.6 | 8.7 | 2.6 |
| Rockingham | 195.4 | 99.9 | -- | -- | -- | 0.1 | 0.1 | 0.1 |
| Rowan | 144.9 | 99.4 | -- | 0.2 | 0.5 | 0.2 | 0.9 | 0.6 |
| Rutherford | 215.4 | 100.0 | -- | -- | -- | 0.1 | 0.1 | (1/) |
| Stanly | 105.1 | 100.0 | -- | -- | -- | -- | -- | -- |
| Stokes | 181.9 | 100.0 | -- | -- | -- | -- | -- | -- |
| Surry | 211.7 | 99.7 | -- | -- | (1/) | 0.6 | 0.6 | 0.3 |
| Union | 185.8 | 99.9 | -- | -- | (1/) | 0.2 | 0.2 | 0.1 |
| Vance | 78.5 | 92.8 | -- | 5.9 | (1/) | 0.2 | 6.1 | 7.2 |
| Wake | 304.8 | 99.3 | -- | -- | 1.7 | 0.4 | 2.1 | 0.7 |
| Warren | 198.6 | 99.6 | -- | 0.7 | (1/) | 0.1 | 0.8 | 0.4 |
| Yadkin | 113.1 | 99.9 | -- | -- | 0.1 | (1/) | 0.1 | 0.1 |
| Unit total | 5,723.3 | 98.3 | 55.1 | 10.5 | 20.3 | 11.9 | 97.8 | 1.7 |

1/ Less than 50 acres, or 0.05 percent.

Table 26.--Net volume^{1/} of sawtimber by county and species group, 1956

(In million board-feet)

| County | Softwoods ^{2/} | Yellow-poplar and sweetgum ^{3/} | Oaks and other hard hardwoods | All species |
|-------------|-------------------------|---|-------------------------------------|----------------|
| Alamance | 156.7 | 79.1 | 104.3 | 340.1 |
| Alexander | 81.1 | 16.1 | 76.6 | 173.8 |
| Anson | 348.4 | 118.3 | 46.0 | 512.7 |
| Cabarrus | 96.4 | 38.1 | 121.3 | 255.8 |
| Caswell | 228.5 | 88.7 | 181.6 | 498.8 |
| Catawba | 111.1 | 25.0 | 88.3 | 224.4 |
| Chatham | 470.9 | 221.6 | 255.4 | 947.9 |
| Cleveland | 201.8 | 103.8 | 25.4 | 331.0 |
| Davidson | 175.6 | 114.7 | 204.3 | 494.6 |
| Davie | 50.0 | 36.1 | 56.9 | 143.0 |
| Durham | 115.3 | 115.6 | 143.3 | 374.2 |
| Forsyth | 83.3 | 65.8 | 58.2 | 207.3 |
| Franklin | 386.2 | 127.7 | 225.0 | 738.9 |
| Gaston | 127.6 | 43.0 | 37.3 | 207.9 |
| Granville | 394.9 | 186.0 | 122.0 | 702.9 |
| Guilford | 206.6 | 129.0 | 153.2 | 488.8 |
| Iredell | 142.1 | 62.5 | 204.5 | 409.1 |
| Lincoln | 65.9 | 13.6 | 51.9 | 131.4 |
| Mecklenburg | 250.0 | 59.3 | 145.6 | 454.9 |
| Montgomery | 257.8 | 36.7 | 177.3 | 471.8 |
| Orange | 200.0 | 81.6 | 155.8 | 437.4 |
| Person | 271.5 | 59.9 | 87.3 | 418.7 |
| Polk | 81.2 | 16.7 | 47.6 | 145.5 |
| Randolph | 235.1 | 56.3 | 249.0 | 540.4 |
| Rockingham | 26.1 | 64.0 | 83.9 | 174.0 |
| Rowan | 109.7 | 111.1 | 161.0 | 381.8 |
| Rutherford | 127.4 | 26.2 | 156.5 | 310.1 |
| Stanly | 121.7 | 17.9 | 100.8 | 240.4 |
| Stokes | 134.2 | 51.5 | 128.7 | 314.4 |
| Surry | 188.8 | 41.1 | 87.4 | 317.3 |
| Union | 135.9 | 44.9 | 61.0 | 241.8 |
| Vance | 118.7 | 36.1 | 30.1 | 184.9 |
| Wake | 548.4 | 266.1 | 203.2 | 1,017.7 |
| Warren | 104.2 | 106.1 | 167.9 | 378.2 |
| Yadkin | 151.6 | 10.9 | 86.9 | 249.4 |
| Unit total | 6,504.7 | 2,671.1 | 4,285.5 | 13,461.3 |

^{1/} Log scale, International 1/4-inch rule.

^{2/} Includes white pine and redcedar.

^{3/} Includes other soft hardwoods.

Table 27.--Net volume^{1/} of sawtimber by county, broad species group,
and diameter-class group, 1956

(In million board-feet)

| County | Softwoods | | | Hardwoods | | |
|-------------|--------------------|---------------------|-----------------|---------------------|---------------------|-----------------|
| | 9.0-14.9 inches | 15.0-18.9 inches | 19.0+ inches | 11.0-14.9 inches | 15.0-18.9 inches | 19.0+ inches |
| Alamance | 150.0 | 6.7 | -- | 71.4 | 66.1 | 45.9 |
| Alexander | 78.8 | 2.3 | -- | 42.3 | 36.9 | 13.5 |
| Anson | 212.1 | 65.1 | 71.2 | 85.7 | 54.4 | 24.2 |
| Cabarrus | 86.5 | 9.9 | -- | 67.5 | 46.3 | 45.6 |
| Caswell | 198.3 | 30.2 | -- | 114.2 | 94.0 | 62.1 |
| Catawba | 101.6 | 9.5 | -- | 52.2 | 47.2 | 13.9 |
| Chatham | 378.4 | 34.0 | 58.5 | 260.5 | 89.0 | 127.5 |
| Cleveland | 176.4 | 19.2 | 6.2 | 48.8 | 33.5 | 46.9 |
| Davidson | 152.8 | 13.6 | 9.2 | 161.9 | 94.4 | 62.7 |
| Davie | 47.4 | 2.6 | -- | 51.2 | 31.2 | 10.6 |
| Durham | 61.6 | 27.3 | 26.4 | 87.5 | 80.7 | 90.7 |
| Forsyth | 63.0 | 20.3 | -- | 49.2 | 37.4 | 37.4 |
| Franklin | 177.6 | 148.2 | 60.4 | 157.0 | 81.7 | 114.0 |
| Gaston | 118.7 | 8.9 | -- | 45.5 | 17.5 | 17.3 |
| Granville | 285.0 | 65.3 | 44.6 | 130.9 | 66.5 | 110.6 |
| Guilford | 168.8 | 37.8 | -- | 144.4 | 65.9 | 71.9 |
| Iredell | 120.9 | 12.0 | 9.2 | 114.7 | 102.8 | 49.5 |
| Lincoln | 56.4 | 9.5 | -- | 38.8 | 22.8 | 3.9 |
| Mecklenburg | 207.1 | 16.8 | 26.1 | 65.5 | 62.8 | 76.6 |
| Montgomery | 217.9 | 30.5 | 9.4 | 143.5 | 42.3 | 28.2 |
| Orange | 176.5 | 16.5 | 7.0 | 125.2 | 76.0 | 36.2 |
| Person | 255.5 | 16.0 | -- | 73.6 | 40.5 | 33.1 |
| Polk | 61.9 | 14.1 | 5.2 | 43.1 | 16.1 | 5.1 |
| Randolph | 204.0 | 31.1 | -- | 245.5 | 44.3 | 15.5 |
| Rockingham | 21.6 | 4.5 | -- | 68.3 | 20.7 | 58.9 |
| Rowan | 92.9 | 10.8 | 6.0 | 116.7 | 82.4 | 73.0 |
| Rutherford | 122.8 | 4.6 | -- | 104.1 | 56.0 | 22.6 |
| Stanly | 93.8 | 11.8 | 16.1 | 80.6 | 34.0 | 4.1 |
| Stokes | 103.1 | 23.2 | 7.9 | 65.6 | 56.7 | 57.9 |
| Surry | 120.5 | 48.7 | 19.6 | 64.1 | 29.5 | 34.9 |
| Union | 135.9 | -- | -- | 49.5 | 49.9 | 6.5 |
| Vance | 106.3 | 7.3 | 5.1 | 38.3 | 17.1 | 10.8 |
| Wake | 341.5 | 162.9 | 44.0 | 198.9 | 140.6 | 129.8 |
| Warren | 84.2 | 20.0 | -- | 129.3 | 87.7 | 57.0 |
| Yadkin | 133.3 | 18.3 | -- | 53.5 | 30.1 | 14.2 |
| Unit total | 5,113.1 | 959.5 | 432.1 | 3,389.0 | 1,955.0 | 1,612.6 |

^{1/} Log scale, International 1/4-inch rule.

Table 28.--Net volume^{1/} of all timber by county, pulping species group, and tree-diameter group, 1956

(In thousand cords)

| GROWING STOCK | | | | | | | | | |
|---------------|---------------|------------|-----------------|------------|----------------|------------|----------------|------------|-------------|
| County | Yellow pines | | Other softwoods | | Soft hardwoods | | Hard hardwoods | | All species |
| | 5 - 12 inches | 13+ inches | 5 - 12 inches | 13+ inches | 5 - 12 inches | 13+ inches | 5 - 12 inches | 13+ inches | |
| Alamance | 826 | 51 | 73 | 3 | 223 | 140 | 302 | 200 | 1,818 |
| Alexander | 600 | 37 | 14 | -- | 50 | 32 | 175 | 150 | 1,058 |
| Anson | 1,284 | 404 | 11 | 4 | 198 | 233 | 238 | 81 | 2,453 |
| Cabarrus | 428 | 98 | 25 | 2 | 114 | 76 | 335 | 245 | 1,323 |
| Caswell | 971 | 159 | 7 | -- | 437 | 161 | 357 | 403 | 2,495 |
| Catawba | 524 | 68 | -- | -- | 29 | 50 | 294 | 163 | 1,128 |
| Chatham | 1,790 | 379 | 34 | -- | 705 | 409 | 1,008 | 429 | 4,754 |
| Cleveland | 870 | 165 | -- | -- | 183 | 212 | 175 | 57 | 1,662 |
| Davidson | 1,004 | 93 | 18 | -- | 325 | 214 | 491 | 353 | 2,498 |
| Davie | 336 | 21 | 18 | 2 | 151 | 53 | 178 | 109 | 868 |
| Durham | 619 | 137 | -- | 3 | 259 | 240 | 229 | 294 | 1,781 |
| Forsyth | 417 | 78 | 14 | -- | 267 | 107 | 298 | 121 | 1,302 |
| Franklin | 958 | 559 | 8 | -- | 326 | 257 | 431 | 455 | 2,994 |
| Gaston | 624 | 67 | 2 | -- | 168 | 87 | 196 | 63 | 1,207 |
| Granville | 1,336 | 430 | 7 | -- | 506 | 344 | 539 | 209 | 3,371 |
| Guilford | 778 | 191 | 14 | -- | 326 | 226 | 507 | 260 | 2,302 |
| Iredell | 451 | 119 | 27 | 4 | 251 | 122 | 340 | 403 | 1,717 |
| Lincoln | 446 | 50 | 1 | -- | 138 | 29 | 200 | 96 | 960 |
| Mecklenburg | 1,048 | 221 | 15 | -- | 120 | 104 | 278 | 296 | 2,082 |
| Montgomery | 1,457 | 186 | 2 | -- | 199 | 75 | 1,120 | 270 | 3,309 |
| Orange | 1,071 | 145 | -- | -- | 249 | 143 | 481 | 332 | 2,421 |
| Person | 1,259 | 118 | 12 | -- | 328 | 101 | 224 | 157 | 2,199 |
| Polk | 388 | 63 | 3 | -- | 36 | 30 | 244 | 76 | 840 |
| Randolph | 1,021 | 153 | 81 | -- | 325 | 78 | 1,483 | 315 | 3,456 |
| Rockingham | 227 | 11 | 3 | -- | 165 | 100 | 252 | 170 | 928 |
| Rowan | 626 | 73 | 28 | 12 | 239 | 203 | 385 | 323 | 1,889 |
| Rutherford | 1,051 | 67 | -- | -- | 117 | 69 | 759 | 272 | 2,335 |
| Stanly | 628 | 109 | -- | -- | 107 | 35 | 391 | 179 | 1,449 |
| Stokes | 505 | 139 | -- | -- | 264 | 98 | 609 | 256 | 1,871 |
| Surry | 851 | 195 | 17 | 20 | 101 | 62 | 304 | 161 | 1,711 |
| Union | 896 | 32 | 8 | -- | 132 | 86 | 369 | 126 | 1,649 |
| Vance | 552 | 111 | -- | -- | 110 | 78 | 116 | 57 | 1,024 |
| Wake | 1,503 | 692 | -- | -- | 487 | 527 | 623 | 419 | 4,251 |
| Warren | 685 | 76 | -- | -- | 156 | 202 | 469 | 364 | 1,952 |
| Yadkin | 712 | 118 | 5 | -- | 81 | 12 | 378 | 161 | 1,467 |
| Unit total | 28,742 | 5,615 | 447 | 50 | 7,872 | 4,995 | 14,778 | 8,025 | 70,524 |

^{1/} Sound wood and bark.

Table 28.--Net volume^{1/} of all timber by county, pulping species group, and tree-diameter group, 1956 (cont.)

(In thousand cords)

OTHER MATERIAL

| County | Yellow pines | | Other softwoods | | Soft hardwoods | | Hard hardwoods | | All species |
|-------------|---------------|------------|-----------------|------------|----------------|------------|----------------|------------|-------------|
| | 5 - 12 inches | 13+ inches | 5 - 12 inches | 13+ inches | 5 - 12 inches | 13+ inches | 5 - 12 inches | 13+ inches | |
| Alamance | 19 | 5 | -- | -- | 44 | 30 | 30 | 30 | 158 |
| Alexander | 42 | 17 | -- | -- | 12 | 10 | 65 | 24 | 170 |
| Anson | 32 | -- | 11 | -- | 51 | 34 | 86 | 68 | 282 |
| Cabarrus | 1 | 10 | 3 | 2 | 23 | 48 | 84 | 43 | 214 |
| Caswell | 35 | 10 | -- | -- | 58 | 70 | 81 | 100 | 354 |
| Catawba | 60 | -- | -- | -- | 16 | 1 | 47 | 21 | 145 |
| Chatham | 18 | 27 | -- | -- | 158 | 115 | 221 | 240 | 779 |
| Cleveland | 22 | 3 | -- | -- | 57 | 43 | 75 | 51 | 251 |
| Davidson | 13 | -- | -- | -- | 39 | 42 | 70 | 71 | 235 |
| Davie | 9 | -- | -- | -- | 29 | 14 | 16 | 14 | 82 |
| Durham | 91 | 4 | -- | -- | 43 | 66 | 52 | 86 | 342 |
| Forsyth | 96 | -- | 4 | -- | 23 | 37 | 35 | 62 | 257 |
| Franklin | 20 | -- | -- | -- | 108 | 42 | 98 | 76 | 344 |
| Gaston | 74 | 10 | -- | -- | 36 | 6 | 64 | 24 | 214 |
| Granville | 24 | 4 | -- | -- | 48 | 57 | 97 | 58 | 288 |
| Guilford | 8 | 12 | -- | -- | 64 | 16 | 48 | 70 | 218 |
| Iredell | 104 | 10 | -- | -- | 79 | 11 | 202 | 82 | 488 |
| Lincoln | 22 | 7 | -- | -- | 16 | 47 | 60 | 42 | 194 |
| Mecklenburg | 20 | 16 | 19 | -- | 77 | 62 | 68 | 87 | 349 |
| Montgomery | 23 | 8 | -- | -- | 115 | 36 | 132 | 112 | 426 |
| Orange | 4 | 4 | 2 | -- | 63 | 31 | 46 | 40 | 190 |
| Person | 51 | -- | 9 | -- | 82 | 40 | 25 | 33 | 240 |
| Polk | 142 | 21 | 1 | -- | 45 | 5 | 134 | 119 | 467 |
| Randolph | 64 | 7 | -- | -- | 182 | 37 | 327 | 130 | 747 |
| Rockingham | 489 | 14 | -- | -- | 123 | 73 | 112 | 46 | 857 |
| Rowan | 22 | 12 | 5 | -- | 60 | 14 | 71 | 45 | 229 |
| Rutherford | 50 | 3 | -- | -- | 90 | 24 | 142 | 211 | 520 |
| Stanly | 68 | -- | 2 | -- | 48 | 2 | 88 | 47 | 255 |
| Stokes | 34 | 18 | -- | -- | 51 | 22 | 149 | 65 | 339 |
| Surry | 244 | 28 | -- | -- | 18 | 33 | 348 | 76 | 747 |
| Union | -- | -- | 13 | -- | 47 | 72 | 131 | 114 | 377 |
| Vance | 25 | 5 | 1 | -- | 45 | 72 | 38 | 22 | 208 |
| Wake | 59 | 5 | 2 | -- | 59 | 65 | 133 | 63 | 386 |
| Warren | 14 | -- | -- | -- | 73 | 144 | 60 | 44 | 335 |
| Yadkin | 109 | 3 | -- | -- | 73 | 6 | 60 | 43 | 294 |
| Unit total | 2,108 | 263 | 72 | 2 | 2,155 | 1,427 | 3,495 | 2,459 | 11,981 |

^{1/} Sound wood and bark.

Table 29.--Average annual sawtimber drain by county and species group^{1/}

(In million board-feet)

| County | Yellow pine | Other softwoods | Soft hardwoods | Hard hardwoods | All species |
|-------------|----------------|--------------------|-------------------|-------------------|----------------|
| Alamance | 1.6 | -- | 2.3 | 8.2 | 12.1 |
| Alexander | 9.8 | -- | 1.2 | 1.6 | 12.6 |
| Anson | 14.5 | -- | 5.9 | 11.2 | 31.6 |
| Cabarrus | 6.3 | -- | 1.3 | 1.8 | 9.4 |
| Caswell | -- | -- | -- | 0.7 | 0.7 |
| Catawba | 16.8 | -- | 0.3 | 3.6 | 20.7 |
| Chatham | 19.0 | 0.2 | -- | -- | 19.2 |
| Cleveland | 9.2 | -- | -- | 1.0 | 10.2 |
| Davidson | 1.4 | -- | -- | -- | 1.4 |
| Davie | 8.0 | 0.2 | 0.2 | -- | 8.4 |
| Durham | 12.1 | -- | 2.5 | 1.5 | 16.1 |
| Forsyth | 12.5 | 0.2 | 7.0 | 6.0 | 25.7 |
| Franklin | 33.1 | -- | 1.1 | 0.5 | 34.7 |
| Gaston | 12.3 | -- | 1.1 | -- | 13.4 |
| Granville | 20.8 | -- | 6.3 | 9.0 | 36.1 |
| Guilford | 7.3 | -- | 2.5 | 15.4 | 25.2 |
| Iredell | 17.2 | -- | 2.5 | 10.0 | 29.7 |
| Lincoln | 6.0 | 0.4 | -- | 1.9 | 8.3 |
| Mecklenburg | 15.0 | 0.5 | -- | -- | 15.5 |
| Montgomery | 19.6 | -- | 2.4 | 7.3 | 29.3 |
| Orange | 3.5 | -- | 3.3 | -- | 6.8 |
| Person | 9.2 | -- | 2.0 | 0.8 | 12.0 |
| Polk | 12.9 | -- | 0.6 | 1.4 | 14.9 |
| Randolph | 36.9 | -- | 2.9 | 5.8 | 45.6 |
| Rockingham | 16.9 | -- | 1.1 | 1.9 | 19.9 |
| Rowan | 2.7 | 2.5 | 6.7 | 2.9 | 14.8 |
| Rutherford | 10.8 | -- | -- | 2.9 | 13.7 |
| Stanly | 1.3 | -- | -- | 0.8 | 2.1 |
| Stokes | 7.2 | -- | 1.1 | 7.6 | 15.9 |
| Surry | 8.5 | -- | 1.4 | 2.6 | 12.5 |
| Union | 11.0 | -- | 11.5 | 0.5 | 23.0 |
| Vance | 11.7 | -- | 0.3 | 0.7 | 12.7 |
| Wake | 80.6 | -- | 12.2 | 11.9 | 104.7 |
| Warren | 44.3 | -- | 0.9 | -- | 45.2 |
| Yadkin | 9.2 | -- | -- | 5.0 | 14.2 |
| Unit total | 509.2 | 4.0 | 80.6 | 124.5 | 718.3 |

^{1/} Estimates of timber drain by county are less accurate than inventory volumes, and use of individual county statistics should be avoided. For general use, data for a minimum of 10 counties should be combined.

Table 30.--Average annual drain on growing stock by county and species group^{1/}

(In thousand cords)

| County | Yellow pine | Other softwoods | Soft hardwoods | Hard hardwoods | All species |
|-------------|----------------|--------------------|-------------------|-------------------|----------------|
| Alamance | 5 | 2 | 7 | 21 | 35 |
| Alexander | 77 | -- | 4 | 4 | 85 |
| Anson | 80 | -- | 14 | 31 | 125 |
| Cabarrus | 21 | 1 | 6 | 7 | 35 |
| Caswell | 18 | -- | 6 | 9 | 33 |
| Catawba | 68 | 1 | 6 | 19 | 94 |
| Chatham | 76 | 2 | -- | -- | 78 |
| Cleveland | 28 | -- | -- | 4 | 32 |
| Davidson | 5 | -- | -- | -- | 5 |
| Davie | 31 | 1 | 2 | -- | 34 |
| Durham | 51 | 1 | 13 | 10 | 75 |
| Forsyth | 40 | -- | 21 | 30 | 91 |
| Franklin | 124 | -- | 11 | 10 | 145 |
| Gaston | 50 | -- | 5 | 6 | 61 |
| Granville | 56 | 1 | 32 | 31 | 120 |
| Guilford | 36 | -- | 7 | 38 | 81 |
| Iredell | 78 | 2 | 8 | 36 | 124 |
| Lincoln | 33 | 1 | 1 | 5 | 40 |
| Mecklenburg | 46 | 1 | -- | -- | 47 |
| Montgomery | 86 | -- | 9 | 24 | 119 |
| Orange | 24 | -- | 9 | -- | 33 |
| Person | 54 | -- | 7 | 5 | 66 |
| Polk | 46 | -- | 7 | 10 | 63 |
| Randolph | 120 | 1 | 18 | 32 | 171 |
| Rockingham | 64 | 1 | 13 | 13 | 91 |
| Rowan | 8 | 6 | 22 | 10 | 46 |
| Rutherford | 52 | -- | -- | 9 | 61 |
| Stanly | 9 | -- | -- | 4 | 13 |
| Stokes | 32 | -- | 6 | 26 | 64 |
| Surry | 36 | -- | 5 | 8 | 49 |
| Union | 43 | -- | 32 | 4 | 79 |
| Vance | 37 | -- | 1 | 4 | 42 |
| Wake | 272 | -- | 31 | 32 | 335 |
| Warren | 158 | -- | 3 | -- | 161 |
| Yadkin | 33 | -- | 1 | 16 | 50 |
| Unit total | 1,997 | 21 | 307 | 458 | 2,783 |

^{1/} Estimates of timber drain by county are less accurate than inventory volumes, and use of individual county statistics should be avoided. For general use, data for a minimum of 10 counties should be combined.

DEFINITION OF TERMS

Land-Use Classes

Forest land: Includes (a) lands which are at least 10 percent stocked with trees of any size and capable of producing sawtimber or other wood products, and (b) lands from which the trees described in (a) have been removed to less than 10-percent stocking but which have not been developed for other use; subdivided into the following classes:

Commercial: Forest land which is (a) producing, or physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or in the future, and (c) not withdrawn from timber use.

Noncommercial: Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land, or (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions, or so physically inaccessible as to be unavailable economically in the foreseeable future.

Nonforest land: Includes land under cultivation or in pasture where the timber has been cleared to less than 10 percent stocking, idle or abandoned agricultural land, marsh land, and land in urban, residential, or industrial areas, school yards, cemeteries, roads, railroads, and other rights-of-way.

Water: Includes lakes, bays, and estuaries over 40 acres in size, and streams, canals, and sloughs at least one-eighth of a mile in width which are classed as "inland water" by the Bureau of the Census. Smaller lakes and ponds between one acre and 40 acres in size, and waterways between 120 feet and 660 feet in width, which are classed as land area by the Bureau of the Census, are also included as water areas.

Forest Types

Forest type is determined on the basis of cubic volume for all stand sizes except seedlings and saplings (stand size 4), in which case the number of stems are the criteria.

Yellow pine types: Forests in which 50 percent or more of the cubic volume or number of stems in the stand is shortleaf, pitch, or Virginia pine species. In mixtures the predominating species determines the type.

White pine: Forests in which 50 percent or more of the stand is eastern white pine and hemlock, either singly or in combination.

Oak-pine type: Forests in which 50 percent or more of the stand is hardwoods, usually upland oaks, but in which southern yellow pine species make up 25 to 49 percent of the stand.

Oak-hickory type: Upland hardwood forests in which 50 percent or more of the stand is composed of oak, hickory, yellow-poplar, soft maple, basswood, sweet birch, ash, and other hardwood species, except in cases where yellow pines made up 25 to 49 percent and the stand was classified as oak-pine type.

Oak-gum cypress type: Bottomland forests in which 50 percent or more of the stand is tupelo, blackgum, sweetgum, ash, oak, elm, maple, in mixture with cypress and other associated species, except where pines comprise 25-49 percent of the stand.

Stand-Size Classes

Sawtimber: Stands containing at least 1,500 board-feet net volume per acre, International 1/4-inch log rule, in sound, live, softwood trees 9.0 inches d.b.h. or larger, or hardwood trees 11.0 inches d.b.h. or larger. Two classes of sawtimber stands are recognized:

Large sawtimber: Stands of sawtimber having more than 50 percent of the net board-foot volume in trees 15.0 inches d.b.h. or larger.

Small sawtimber: Stands of sawtimber having 50 percent or more of the net board-foot volume in trees smaller than 15.0 inches d.b.h.

Poletimber: Stands failing to meet the minimum sawtimber specifications, but at least 10-percent stocked with trees 5.0 inches d.b.h. or larger and with at least half the minimum stocking in pole-size trees.

Seedling and saplings: Stands not qualifying as sawtimber or poletimber stands, but having at least a 10-percent stocking of trees of commercial species and with half the minimum stocking in seedlings and saplings.

Nonstocked and other areas: Forest areas not qualifying as sawtimber, poletimber, or seedling and sapling stands.

Diameters

D.b.h. (diameter at breast height): Stem diameter in inches, outside bark, measured at 4-1/2 feet above the ground.

Diameter class: All trees were tallied by 2-inch diameter classes, each class including diameters 1.0 inch below and 0.9 inch above the stated midpoint, e.g., trees 7.0 to and including 8.9 inches are included in the 8-inch class. Corresponding limits apply to other diameter classes.

Timber Quality Classification

Growing Stock

Sawtimber trees: Live softwood trees at least 9.0 inches d.b.h. and hardwood trees at least 11.0 inches d.b.h., with not less than one merchantable log 12 feet long, or with less than 50 percent of the gross volume of the tree in sound sawtimber. To be merchantable all saw logs must be at least 8 feet long and at least 50 percent sound. They must also meet the following requirements:

Softwood logs^{1/} must have a scaling diameter of 6 inches or larger, and sweep or crook must not exceed two-thirds of the scaling diameter.

Hardwood logs must have a scaling diameter of 8 inches or larger and must pass specifications^{2/} for standard lumber logs, or tie and timber logs.

Poletimber trees: Straight-boled trees between 5.0 inches d.b.h. and sawtimber size.

Sapling-size trees: Trees 1.0 inch to 4.9 inches d.b.h. which will grow into poletimber or sawtimber-size trees of sound quality.

Other Material

Sound cull trees: Live trees of all sizes that are unmerchantable for saw logs now or prospectively because of species, poor form, excessive limbiness, or other sound defect.

Rotten cull trees: Live trees of all sizes that are unmerchantable for saw logs now or prospectively because of rotten defect.

Hardwood limbs: The limb volume of all hardwood sawtimber and cull trees to a minimum diameter of 4.0 inches inside bark.

Species Groups

Yellow pines: Includes shortleaf, loblolly, Virginia, and longleaf pine.

Other softwoods: White pine, hemlock, and eastern redcedar.

Soft hardwoods: Blackgum, sweetgum, yellow-poplar, soft maple, elm, sycamore, hackberry, buckeye, and willow.

Hard hardwoods: All of the oaks, hickories, ash, beech, birch, hard maple, black locust, black walnut, holly, dogwood, persimmon, and sourwood.

^{1/} For detailed specifications of log grades, see "Interim log grades for southern pine." Southern Forest Experiment Station, 18 pp. 1953.

^{2/} For detailed hardwood log grade specifications, see "Hardwood log grades for standard lumber: proposals and results." U. S. Forest Products Laboratory, DL737. 1949.

Volume Estimates

Board-foot volume: The volume in board feet, measured by the International 1/4-inch rule, exclusive of defect, of that portion of sound sawtimber trees between the stump and the upper limit of merchantability for saw logs.

Volume in cords: For sound trees the volume in standard cords (including bark) of the sound portion of trees 5.0 inches d.b.h. and larger, between stump and a minimum top-stem diameter of 4.0 inches inside bark. Similar volumes are given for cull trees. The volume in limbs, which are at least 4.0 inches in diameter inside bark, is shown separately for all sawtimber-size hardwoods.

Volume in cubic feet: Same as volume shown in cords except bark is not included.

International 1/4-inch log rule: A rule for estimating the board-foot volume of 4-foot log sections, according to the formula $V = .905 (0.22D^2 - 0.71D)$. The taper allowance for computing the volume in log lengths greater than four feet is 0.5 inch per 4-foot section. Allowance for saw kerf is 1/4 inch.

Standard cord: A stacked pile, 4 x 4 x 8 feet, of round or split bolts, estimated to contain, on the average, about 74 cubic feet of solid wood.

Growth and Timber Cut

Net growth.--The estimated volume of net growth includes the growth on the present growing stock, the growth on trees which died or were cut during the year, and the ingrowth resulting from smaller trees reaching volume size. It excludes mortality, or loss of volume in trees dying from natural causes. Net growth estimates are based on growth of sound trees. Growth of "other material" is not included.

In board-feet: The change during the calendar year in sawtimber volume resulting from growth, ingrowth, and mortality losses.

In cubic feet or cords: The change during the calendar year in the volume of all sound trees 5.0 inches and larger resulting from growth, ingrowth, and mortality losses.

Timber cut.--The volume of timber cut is based on the measurement and tally of stumps found on regular ground sample plots. Stumps of all trees cut during the past 3-year period are recorded and the measurements are converted into equivalent tree volume. The average yearly volume of timber cut for the 3-year period is then taken as the annual estimate. Board-foot volumes include the saw-log portion of all sawtimber-size trees which were cut. Estimates in cubic feet or cords include the entire stem from stump to 4.0-inch top of all sound trees 5.0 inches in diameter and larger. Timber cut from cull or dead trees is not included.

Stocking

Stocking is the extent to which growing space is effectively utilized by trees. The number of stems present by d.b.h. classes was used as a basis for stocking classification. Areas having the minimum numbers of trees listed below, either in a single diameter class or proportionately in any combinations of diameter classes, were considered fully stocked.

| <u>D.b.h.</u> | <u>Minimum number trees per acre</u> |
|---------------|--|
| Seedlings | 1,000 |
| 2 inches | 800 |
| 4 inches | 590 |
| 6 inches | 400 |
| 8 inches | 240 |
| 10 inches | 155 |
| 12 inches | 115 |
| 14 inches | 90 |

RELIABILITY OF FOREST SURVEY DATA

In general, the errors which affect the accuracy of Forest Survey area and timber volume estimates arise from two sources. These may be described as (1) sampling errors which result from using sampling procedures rather than making a complete inventory or canvass, and (2) non-sampling errors which arise from human mistakes in judgment, measurement, recording, or arithmetic.

In Forest Survey work a diligent effort is made to maintain a high degree of accuracy in the collection and compilation of data. The sampling errors are held to a specified minimum through survey design and sampling technique. These errors are the only measurable errors involved in computing the reliability of the data. The non-sampling errors are minimized or eliminated through training, supervision, field check cruises, and complete editing and machine verification in compiling the data.

Forest area.--The sampling intensity of the 1956 survey provided an estimate of the total forest area with a standard error of ± 0.8 percent. The probabilities are two out of three that the actual forest area is within ± 0.8 percent of the estimated acreage. The standard error per million acres was ± 1.9 percent.

Cubic volume.--The standard error of the net cubic-foot volume estimate was ± 2.4 percent, or ± 5.4 percent per billion cubic feet. Here again, the probabilities are two out of three that the actual volume does not vary from the estimated volume by more than this percentage. The error of the volume in standard cords was not computed, but it should be approximately the same as for cubic volume.

Board-foot volume.--The standard error of the total board-foot volume estimate was ± 3.0 percent.

Growth.--Estimates of timber growth are based on measurements of radial growth on 2,985 sample trees, and on mortality data taken on sample plots. Because of technical problems involved, no attempt was made to compute the sampling error of growth estimates.

Timber cut.--Estimates of the amount of timber cut were based on the number and size of stumps tallied on cutover plots. Stumps of all trees cut during the 3-year period preceding date of inventory were recorded, and the measurements were converted into tree volume. The average volume of timber cut for the 3-year period was taken as the annual estimate. The standard error for the total volume of growing stock cut was ± 8.7 percent, or ± 3.9 percent per billion cubic feet.

Use of county data.--The tables showing forest area, timber volumes, and timber cut by county are included to permit grouping of the data in any desired area combinations. In designing the survey, provision was made for controlling the range of sampling error on a county basis. However, comparison or use of individual county statistics should be avoided because of the possibility that they may be subject to considerable error. It is recommended that area or volume data for a minimum of five counties be combined, and that at least 10 counties be used when working with data on timber cut.

The actual range of errors on county data are shown below:

| <u>Item</u> | <u>Percent of error</u> | |
|----------------------|-------------------------|-------------|
| | <u>Low</u> | <u>High</u> |
| Forest area | ± 3.7 | ± 9.0 |
| Growing stock volume | ± 9.2 | ± 13.9 |
| Board-foot volume | ± 11.5 | ± 15.4 |

HOW THE FOREST INVENTORY IS MADE

The present system of inventory is a two-step method which includes land-use classification of points on aerial photographs followed by the cruising of ground sample plots. The county is the basic work unit. The detailed procedure is as follows:



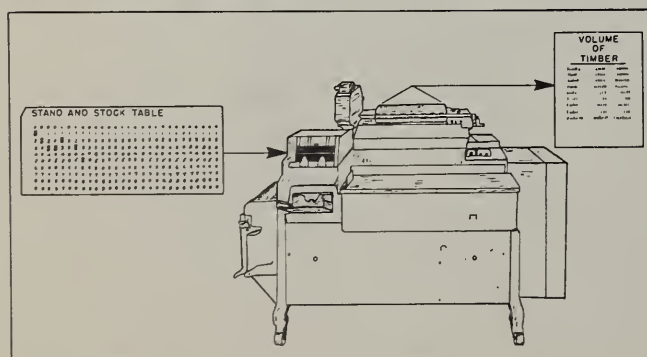
1. Preliminary estimates of the acreage of land in forests and other land-use classes are obtained by classifying points printed on every third aerial photograph in alternate flight lines within a county. The proportion of points falling in each class is used to estimate the acreage. This estimate is later checked and revised through the use of ground plots.



2. Ground sample plots are selected in a systematic manner from the forest land classifications made in Step 1, using an interval which will provide sufficient plots to meet established limits of error per billion cubic feet of timber. This results in a proportional sample of all existing timber stands. Timber cruisers make a detailed description and tally of the ground plots to obtain data on timber volume, quality, stocking, and mortality. Samples of agricultural and other photo classifications are also checked on the ground to verify or adjust the area estimates based on these classifications.



3. Growth estimates are based on increment borings taken proportionally from sample trees of various diameters and species in each forest type and stand class. The volume of timber cut is computed from a tally of the stumps of trees cut on the plots during a specified period.



4. All field data are sent to Asheville for editing and are placed on punch cards for machine sorting and tabulation. Final estimates are based on statistical summaries of the data.

Forest Survey Reports Published Since 1945

Forest Statistics:

- No. 25 - Forest Resources of the Lower Coastal Plain of South Carolina
- No. 26 - 1946 Commodity Drain by County from South Carolina Forests
- No. 28 - South Carolina's Forest Resources, 1947
- No. 30 - Forest Resources of Northeast Florida, 1949
- No. 31 - Forest Resources of Central Florida, 1949
- No. 32 - Forest Resources of Northwest Florida, 1949
- No. 33 - Forest Resources of South Florida, 1949
- No. 34 - Timber Production and Commodity Drain from Florida's Forests, 1948
- No. 36 - Forest Statistics for Florida, 1949
- No. 37 - Forest Statistics for Southwest Georgia, 1951
- No. 39 - Forest Statistics for Southeast Georgia, 1952
- No. 40 - Forest Statistics for Central Georgia, 1952
- No. 41 - Forest Statistics for the Southern Coastal Plain of North Carolina, 1952
- No. 42 - Forest Statistics for North Central and North Georgia, 1953
- No. 44 - Forest Statistics for Georgia, 1951-53
- No. 45 - Forest Statistics for the Northern Coastal Plain of North Carolina, 1955
- No. 46 - Forest Statistics for the Mountain Region of North Carolina, 1955

Pulpwood Production:

- No. 21 - 1945 Pulpwood Production by County in the Carolinas and Virginia
- No. 23 - 1946 Pulpwood Production by County in the Southeast
- No. 27 - 1947 Pulpwood Production by County in the Southeast
- No. 29 - 1948 Pulpwood Production by County in the Southeast
- *No. 35 - 1949 Pulpwood Production in the South (out of print)
- *No. 69 - Pulpwood Production in the South, 1950
- *No. 38 - 1951 Pulpwood Production in the South
- *No. 72 - 1952 Pulpwood Production in the South
- *No. 43 - 1953 Pulpwood Production in the South
- *No. 76 - 1954 Pulpwood Production in the South
- *No. 47 - 1955 Pulpwood Production in the South

Other Reports

- Southern Forests as a Source of Pulpwood. Forest Survey Release No. 22
- Southern Pulpwood Production and the Timber Supply. Forest Survey Release No. 24
- Virginia Forest Resources and Industries, 1949. U. S. Dept. Agr. Misc. Pub. No. 681
- The Timber Supply Outlook in South Carolina, 1951. U. S. Dept. Agr. Resource Report No. 3
- The Timber Supply Situation in Florida, 1952. U. S. Dept. Agr. Resource Report No. 6

